The Lamp

November 1953

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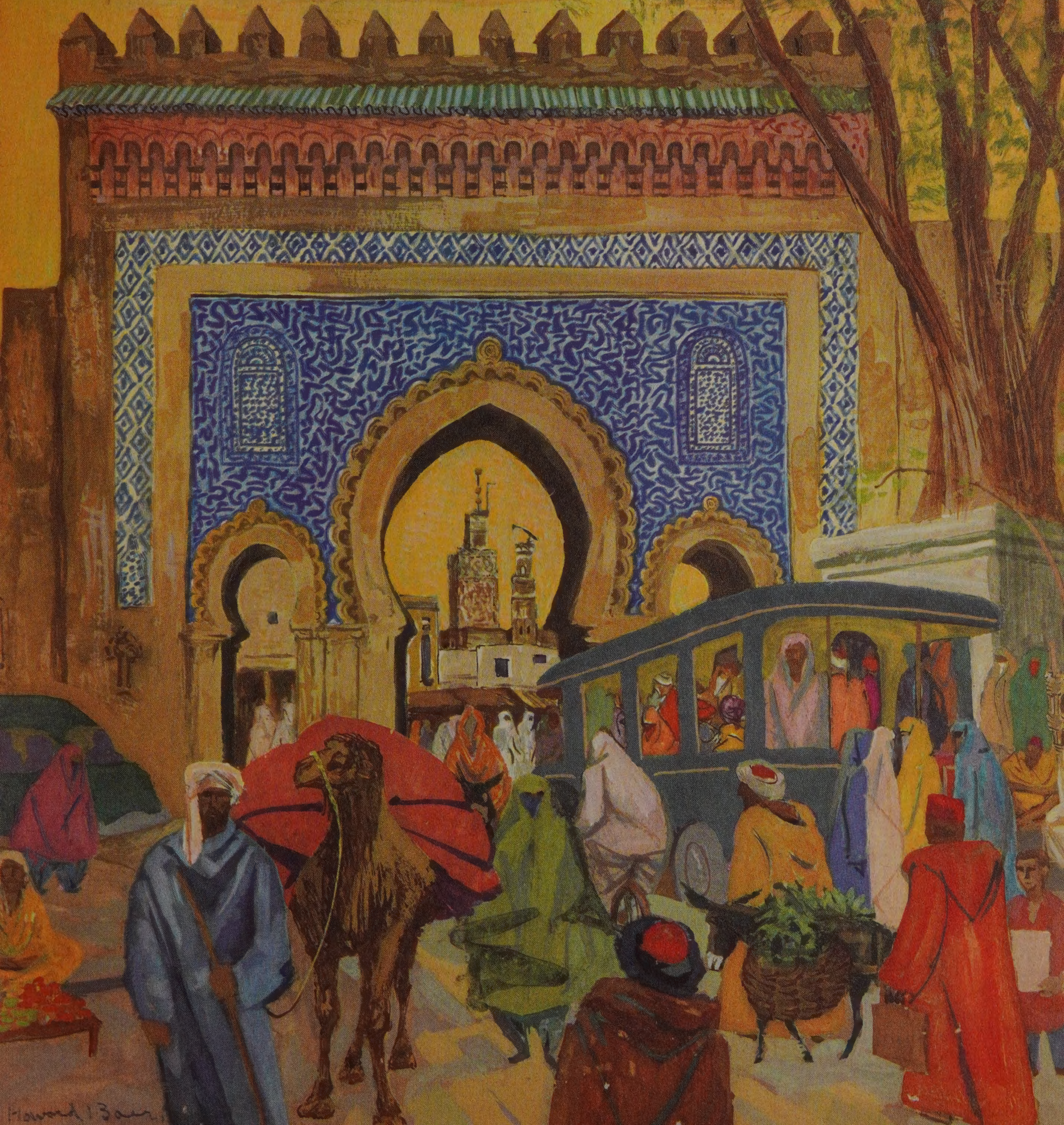

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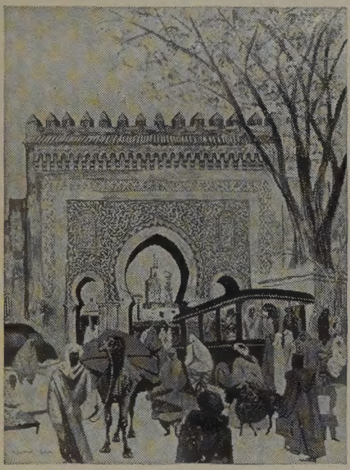

THE GATE of Bou Jeloud in the old quarter of Fez, the capital of French Morocco, is shown on our cover. Built by Arab craftsmen in 1913, it has the astonishing wealth of ornament, carried out in blue enamel, which is typical of Moslem architecture. The higher minaret, seen through the central arch, is that of a large Moslem school. The lower, with a stork's nest on top of it, belongs to a small mosque. Howard Baer, who painted this and the other North African scenes in this issue, was a war artist in the China-Burma-India theater where he ranged from Calcutta to Chungking. Other war portfolios which he painted in the United States are now part of the Abbott Naval Aviation Collection. Mr. Baer was born in a little mining village below Pittsburgh and has studied at the Carnegie Institute in Pittsburgh, The Art Students League in New York, and in Paris. He is represented in the Metropolitan Museum of Art in New York and the Butler Institute in Youngstown, Ohio. He recently had a well-received one-man show in Pittsburgh.

ART CREDITS: *Pages* 2-5, Ben Shahn; *Pages* 11-14, Howard Baer; *Pages* 22-24, Bettina Steinke; *Back Cover*, Matt Leibowitz.

IN A NORMAN VILLAGE, a machinist from the oil refinery at Port Jerome holds his small son's hand as they watch the children playing *La Ronde.* Their Saturday outing is at St. Wandrille, site of an ancient monastery

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Each company affiliated with Standard Oil Company (New Jersey) manages and controls its affairs through its own directors and officers. The use of such items as "company," "Jersey," "organization," "our," and "its," when applicable to such companies, is only for convenience and simplicity.

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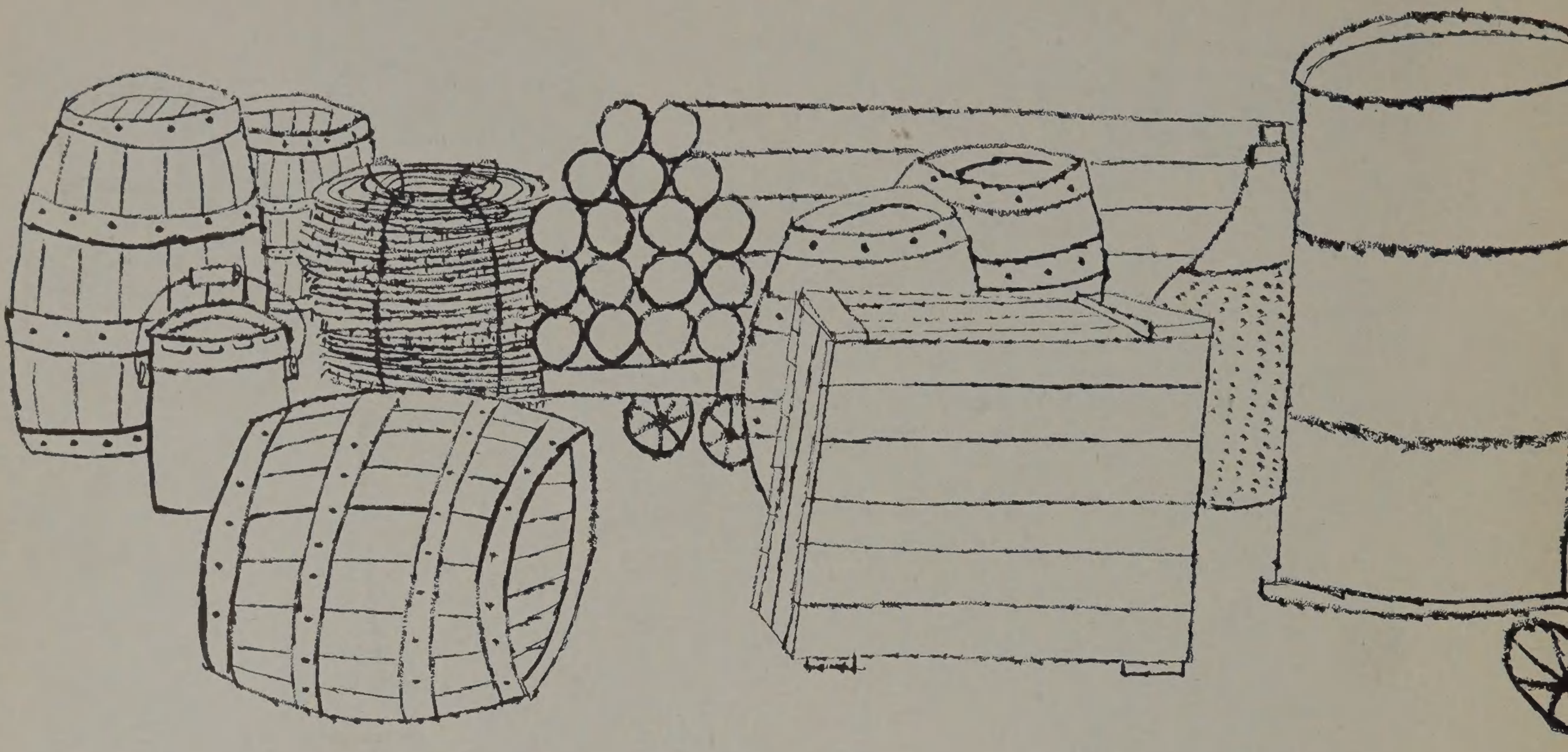


BRIDGING BARRIERS

Jersey affiliates have rearranged the pattern of their

IT may seem odd that an oil refinery in the West Indies, a steel mill in France and a packinghouse in Australia should figure in a sale of crude oil to a French buyer. But these days a company engaged in trade abroad may find that a roundabout way of doing business is the only way possible. The means by which several companies affiliated with Standard Oil Company (New Jersey) arranged the sale of a cargo of crude oil in France is a good example.

Esso Standard of France customarily buys most of the crude for its Port Jerome refinery from Esso Export Corporation. Esso Export in turn obtains this oil from one of the producing companies affiliated with Jersey.

Because France is short of dollars with which to pay for imports, Esso Export some time ago agreed to accept part payment in francs for most of the oil it supplies to Esso France. But the companies which produce the oil generally require payment in dollars.

How can a buyer who must pay partly in francs do business with a seller who must have dollars? The question sums up the great problem of much international business today.

In this instance, Esso Export was able to buy oil for dollars and to resell it partly for francs because of two additional transactions it worked out.

It knew that the Netherlands West Indies refinery at Aruba operated by Lago Oil & Transport Company needed a quantity of steel pipe. Through Esso France, Esso Export arranged to buy this pipe from a French steel mill. It used some of its francs to pay for the pipe and for its ocean freight to Aruba. Lago, however, paid Esso Export for the pipe in dollars.

The rest of its francs Esso Export was able, by arrangement with French and British authorities, to exchange for English pounds sterling. It used the sterling, through the British Food Board, to buy frozen beef in Australia and to pay for delivery of the beef in a British ship to the Lago commissary at Aruba. Again Lago paid Esso Export for the beef in dollars.

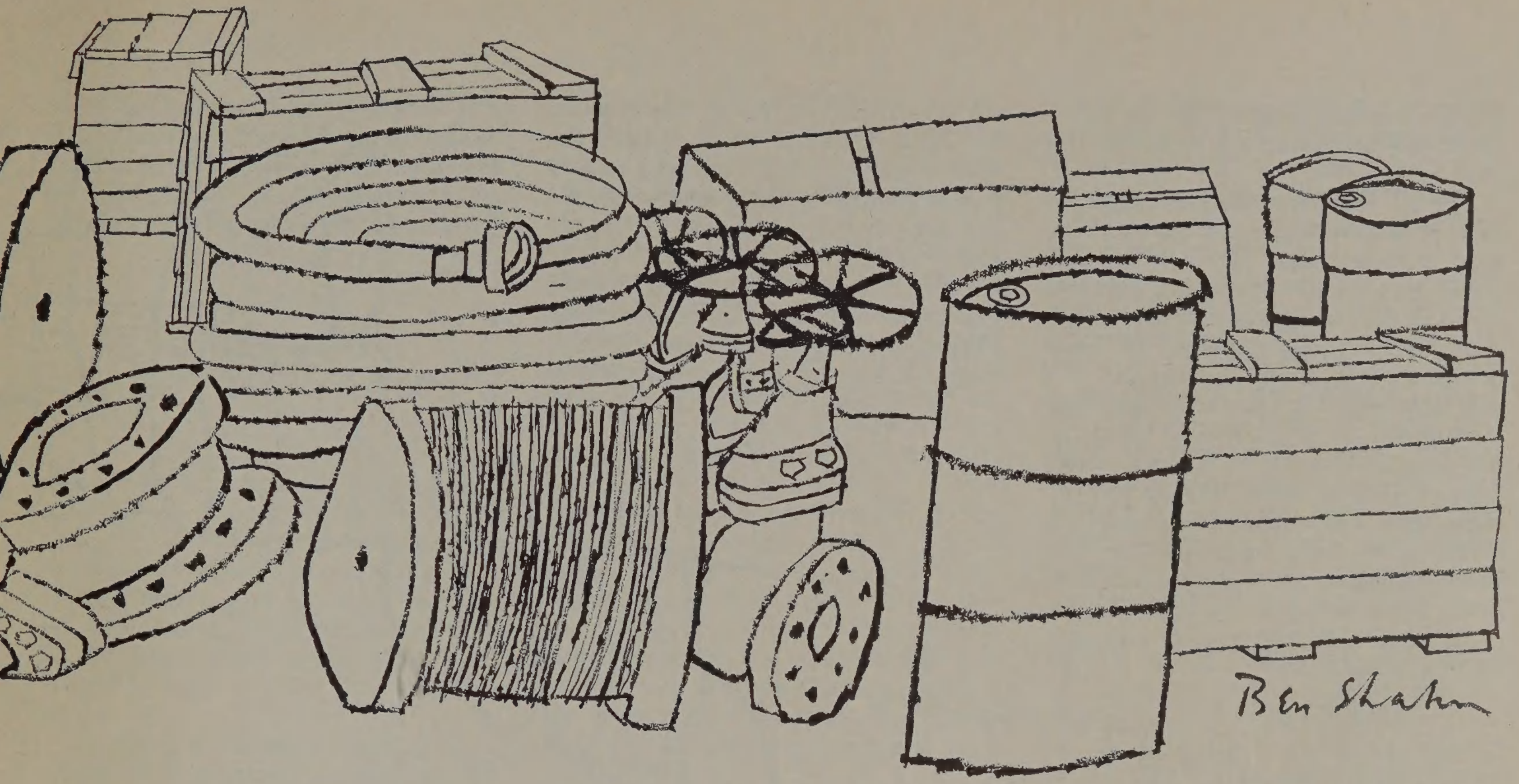
THE constructive results were these: Esso France got oil with which to meet its market needs, and paid for the agreed proportion of the oil with francs. The producing company received dollars for the oil it produced. Lago got steel and beef it needed at a fair price. At the same time, both France and the sterling area benefited from the trade involved.

Esso Export, the pivot of all these transactions, made the chain of events possible by finding useful ways to spend francs on behalf of a sister company able to reimburse Esso Export in dollars.

This story illuminates a basic fact about all international trade—it cannot flow in one direction only. If goods move, or services are supplied, from here to there, then something of equal value must return, even if by a circuitous route, from there to here. If the flow in one direction slows or ceases, so, unless artificially maintained, does the flow in the other direction.

The story also illustrates one of the numerous steps which Jersey Standard has taken to maintain its international trade in oil in the face of the many obstacles which today impede the flow of world commerce. Through an augmented foreign purchasing program, the company has done its utmost to create a flow of goods in channels which will in turn facilitate the flow of oil from Jersey's foreign producing companies to its foreign markets.

Actually, some Jersey affiliates have been buying supplies and equipment abroad for more than twenty years. As a result, they



FOREIGN PURCHASES for Jersey companies in three years have totaled $60 million in value and have run the gamut from steel pipe to birdseed

TO TRADE

European operations in order to carry on business in nations short of dollars

were old established customers of many European manufacturers when the present intensified purchasing program began a little more than three years ago. Since then, Esso Export has acted as a headquarters and clearinghouse for the purchase of about $60 million worth of materials, all of them for the use of other Jersey Standard affiliates. The purchasing operations have extended into some sixteen countries scattered around the world, but they have been most heavily concentrated in a few countries in Western Europe.

These purchases are one aspect of a broad program which is helping Jersey's affiliated companies to function successfully across the boundary, invisible and sometimes ill defined but nonetheless real, between the two worlds which exist in international trade today. One is the world of hard currencies—for example, the U. S. and Canadian dollars, the Venezuelan bolivar, the Swiss franc. The other world is the world of soft currencies.

The hard-currency nations are those which, without resort to strict control of foreign trade, have income from exports, from services performed abroad or from foreign capital transactions at least equal to their payments to other nations. The soft-currency nations are those whose foreign payments, if not restricted, would tend to exceed their foreign income. Therefore their governments try to control all foreign exchange, and particularly hard currencies, to insure that it is used only for purposes deemed essential.

FOR Jersey, the "soft-currency problem" has had two aspects. One has been the tendency of some nations to restrict oil imports to an artificially low level as a means of conserving foreign exchange. A more serious problem has been that of meeting competition in soft-currency markets from foreign-owned oil companies, because these companies are able to import and export with relative freedom for payment in soft currencies. Jersey affiliates on the other hand are subject to all the restrictive currency controls which surround the allocation of scarce dollars.

Jersey and its affiliates began some years ago to attack these problems in a number of ways.

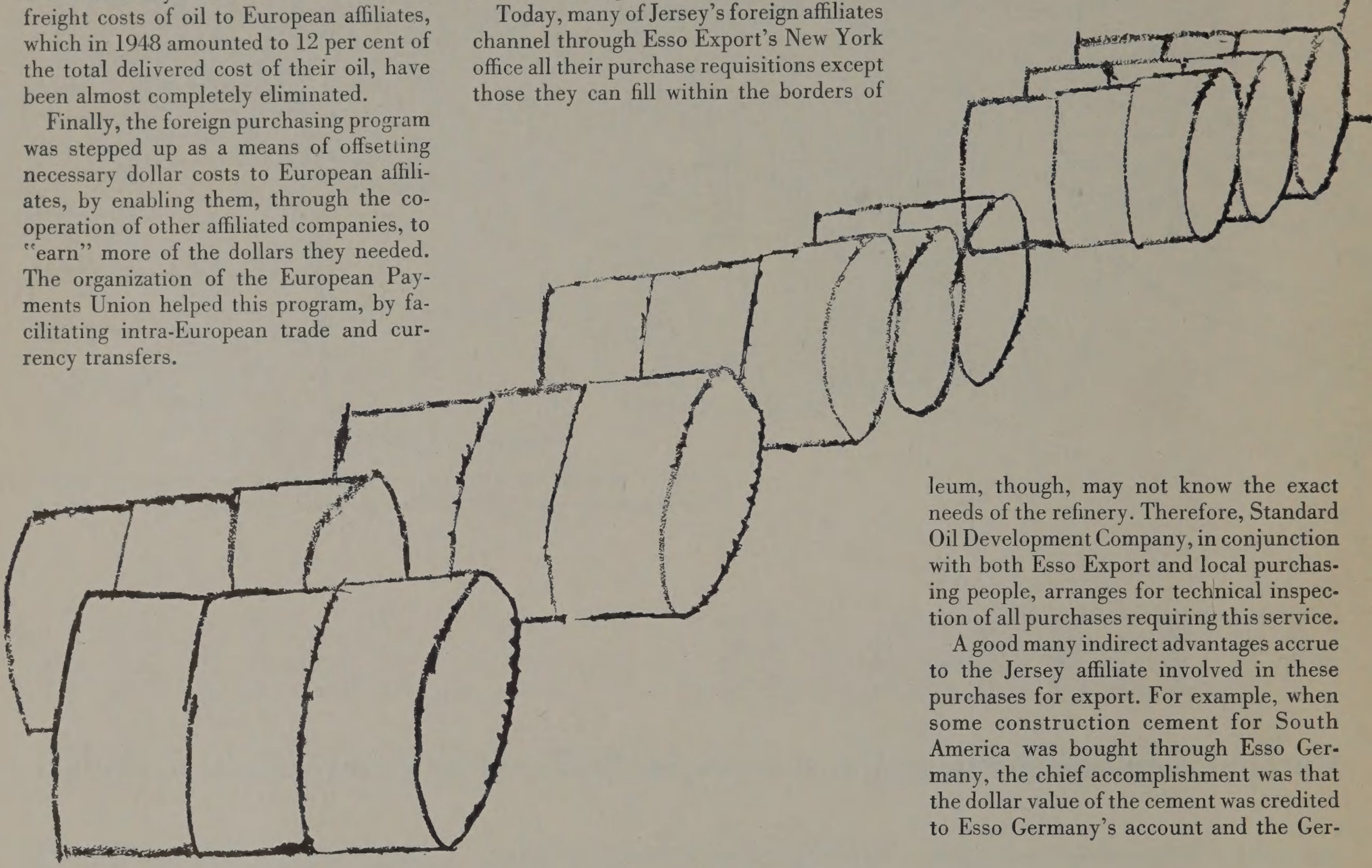
First, Esso Export negotiated agreements with the governments of several dollar-short nations in which it has long been a major oil supplier. In general, these agreements, with Great Britain, France and The Netherlands, provide assurance that the local Jersey affiliates will be able to obtain reasonably adequate amounts of dollars for their essential purchases of oil abroad.

Second, recognizing that the needs of the European economy would inescapably require a gradual change from Western Hemisphere to Eastern Hemisphere sources of oil, Jersey invested $258 million in new oil production and pipeline facilities in the Middle East. It also enlisted the cooperation of Arabian American Oil Company, its principal Middle East oil supplier, in reducing the hard-currency cost of Arabian oil.

Third, to complete the rearrangement of the pattern of their European business, the Jersey affiliates in Western Europe and North Africa spent in six years the equivalent of $338 million on their physical plants, especially refineries. Jersey's European markets, which formerly were largely supplied with products from Western Hemisphere refineries, today import mainly crude oil from the Middle East and refine it at home. This activity has given employment to thousands of Europeans, and is saving their governments great amounts of foreign exchange. This year, the European and North African affiliates will pay out fewer dollars than they did in 1948 while importing almost double the 1948 volume of oil.

Fourth, European affiliates began to build or acquire tankers for operation on a soft-currency basis. As a result, dollar freight costs of oil to European affiliates, which in 1948 amounted to 12 per cent of the total delivered cost of their oil, have been almost completely eliminated.

Finally, the foreign purchasing program was stepped up as a means of offsetting necessary dollar costs to European affiliates, by enabling them, through the cooperation of other affiliated companies, to "earn" more of the dollars they needed. The organization of the European Payments Union helped this program, by facilitating intra-European trade and currency transfers.



Esso Export's normal function in the Jersey organization is to market oil produced and products refined by Jersey affiliates for sale outside the countries in which those affiliates operate. In addition, it conducts a world-wide business in ships' bunkers and aviation fuel for international shipping and air lines.

Its purchases under the present program aim to utilize local currencies available to it, or to build up dollar credit balances for affiliates operating in soft-currency countries. The larger these dollar balances, the more freedom local affiliates generally have to import needed oil supplies for sale in the local markets.

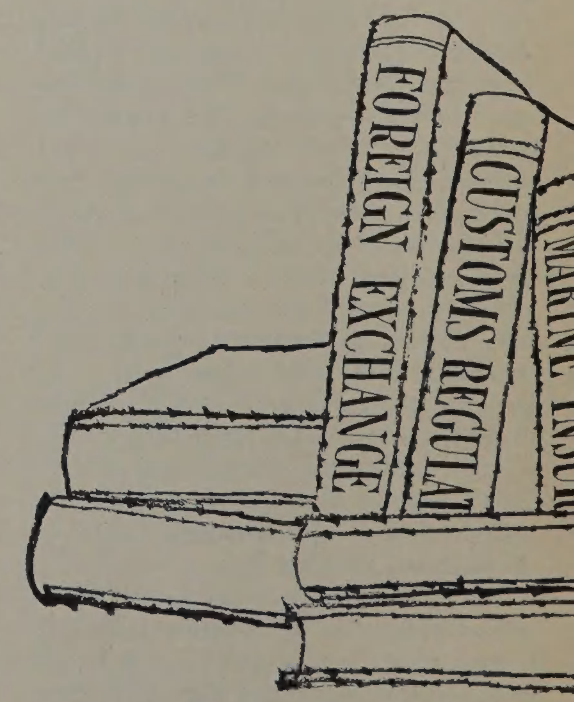
To show how this works, let us suppose that a European steel mill is given an order for $100,000 worth of well casing for a South American affiliate of Jersey Standard. This affiliate pays Esso Export dollars for the steel. The mill, however, is paid in local currency by the local marketing affiliate, which receives a dollar credit from Esso Export. The trade position of many European governments permits them to allocate dollars for most of Esso's ordinary import needs, but there are often marginal import requirements for which dollars are not available. For such requirements, the marketing affiliate may be entitled to obtain dollars from the government in consideration of its past dollar "earnings."

Today, many of Jersey's foreign affiliates channel through Esso Export's New York office all their purchase requisitions except those they can fill within the borders of the countries they operate in. The preliminary screening of each requisition in New York is designed to answer two questions: Where can this be bought? Where will its purchase do the most good for Jersey interests, domestic or international?

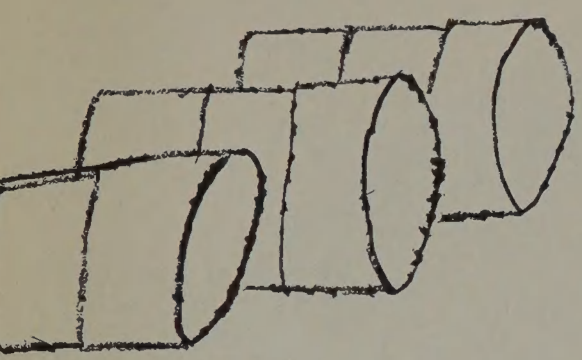
If, for example, wire rope can readily be obtained in a number of European countries, Export may forward the requisition without comment, knowing its representatives in London will direct the order wherever the quoted prices, delivery dates and quality of the goods dictate. But perhaps New York knows that Esso Nederland is having trouble getting dollars to pay for importing some specialty products. New York may then remind London of this need and urge that every consideration be given to placing the order with a supplier in Holland.

Export's coordinator of purchases in London does not, however, physically place any orders. He works, instead, in an advisory capacity, with the purchasing departments of Jersey's European affiliates, who are thoroughly familiar with materials, markets and competitive price levels in their own countries. If, for instance, it is desired to buy flanges in England for Aruba, the purchasing department of Esso Petroleum Company, the British refining and marketing affiliate, will negotiate the business and place the order. Esso Petroleum, though, may not know the exact needs of the refinery. Therefore, Standard Oil Development Company, in conjunction with both Esso Export and local purchasing people, arranges for technical inspection of all purchases requiring this service.

A good many indirect advantages accrue to the Jersey affiliate involved in these purchases for export. For example, when some construction cement for South America was bought through Esso Germany, the chief accomplishment was that the dollar value of the cement was credited to Esso Germany's account and the Ger-



THE TRADER today works amid a forbidding tangle of technical regulations and restrictions



man government gave the company permission to spend a portion of these dollars to import petroleum products. But in addition the cement manufacturer, a large user of heavy fuel oil, gave part of his business, for the first time, to Esso Germany. Finally, the vessel which carried the cement bought bunker fuel from Esso Export at Aruba.

By value, steel pipe is by far the largest single item regularly bought abroad through Esso Export's channels. After pipe come foodstuffs for company commissaries.

A sampling of a recent month's purchases shows sardines from Norway, steel goods and tomatoes from Italy, barytes (a drilling mud chemical) from Greece, undersea hose from France, $11,000 worth of salami from Denmark. In the same month, from Germany came concrete reinforcing fabric, polyglycol and barbed wire; from Holland, powdered, condensed and evaporated milk to the value of $118,000, biscuits, mushrooms, pickles, brushes, beer and $20,000 worth of wiping rags. The long list of English exports, topped by well over $1 million worth of steel pipe, tubing and casing, included $67,000 worth of refinery fittings; kippered herring, coal tar dye, lime juice and chutney; fruit salts valued at $2,000 and birdseed worth $168.

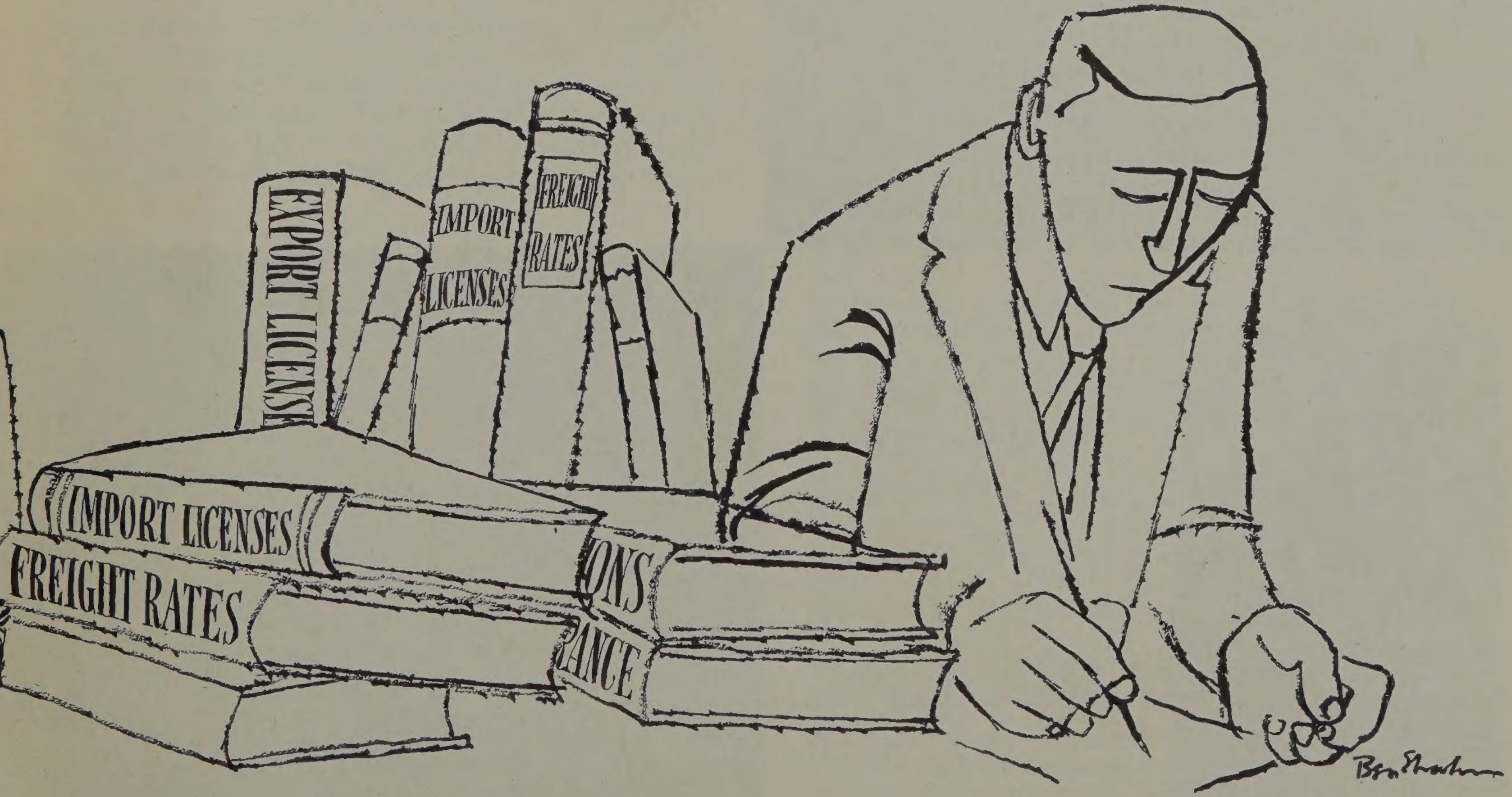
Foreign purchasing is one element in a coordinated effort by which the Jersey company has insured the supplies of oil needed by its European affiliates. As a result, these affiliates have been able to maintain their positions in European markets against competition from foreign companies less hampered than they by the straitjacket of currency controls. For example, although the principal foreign-owned companies do most of their business in sterling, they also have sizable hard-currency expenses, and Jersey affiliates can now import oil into the sterling area at substantially the same cost in hard currency as these foreign-owned companies.

While helping to meet increasing foreign needs for essential supplies of oil, the Jersey program has succeeded in lowering the outlay of hard currency which many nations must make to obtain it, thereby enabling them to use their limited hard-currency resources in other ways. By making heavy new investments abroad, as well as by paying large sums in taxes and royalties to foreign governments, Jersey and its affiliates have stimulated industrial activity, increased the useful output and added strength to the economic systems of these nations.

Jersey's foreign operations have generated well over $160 million annually of the more than $249 million paid in dividends in each of the last two years to the 270,000 Jersey shareholders. The U.S. government shares in these sums as a result of taxes paid by dividend recipients. It also shares in the proceeds of the company's foreign operations through taxes paid by Jersey on its own income, as well as through taxes paid by some affiliates incorporated in the United States but having income from foreign business. Finally, by fostering the economic recovery of nations receiving U.S. government aid, Jersey is helping to achieve objectives toward which U.S. tax revenues have been applied.

THE success, to date, of the company's attack on its soft-currency problem should not obscure the fact that the problem has not been solved, but merely abated. It still exists, and will continue to exist as long as the basic economic imbalances which produce it. In fact, in the foreseeable future, soft-currency difficulties are likely to become acute from time to time rather than to disappear.

Jersey believes that its approach to the soft-currency problem is practical for the long range as well as for the immediate future. The company hopes that it is thereby setting an example of useful productive activity stemming from sound investment, and of the mutual benefits nations can derive from trade which flows in both directions.



SAFEST CITY

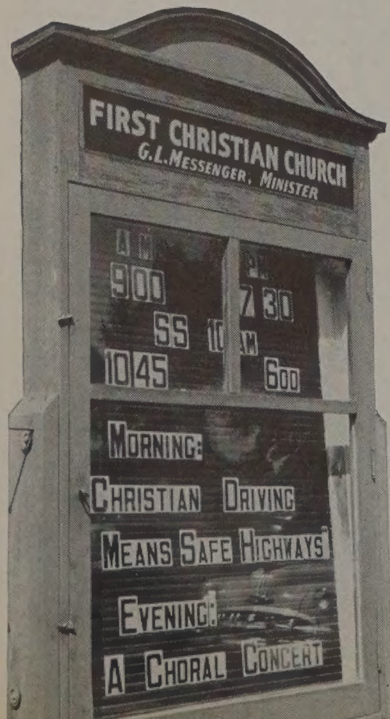
Stillwater, Oklahoma, has been setting safety records by attacking its traffic problems on all fronts 365 days a year

CITY COURT and police try to talk careless drivers into safe habits. Sometimes the judge also sentences a violator to take a driving course in lieu of a fine. Officials are reasonable but firm

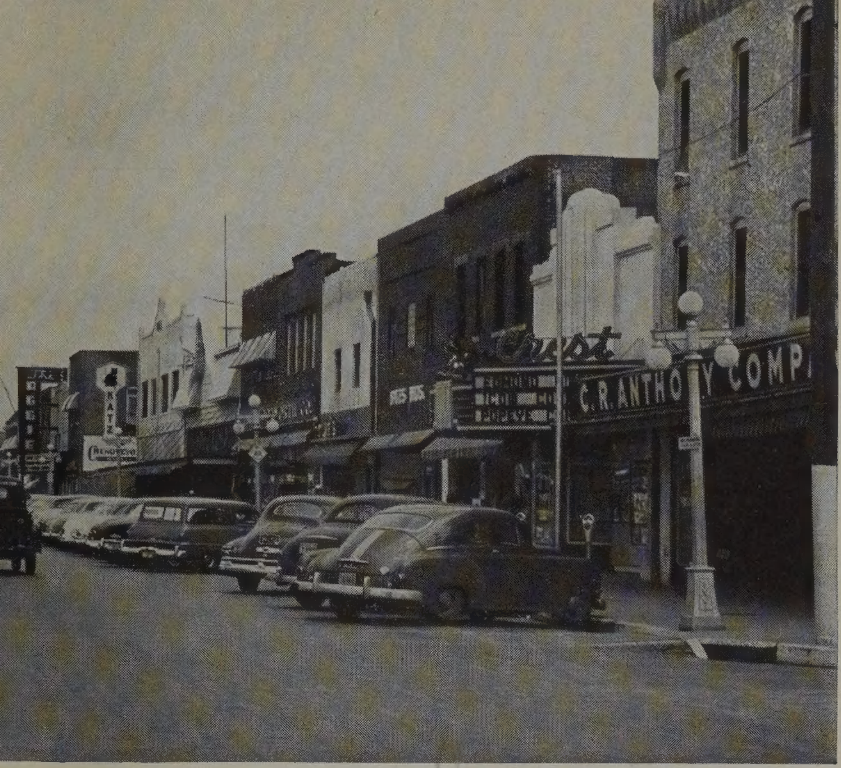
STILLWATER, OKLAHOMA, could easily be a traffic policeman's nightmare. Its more than 20,000 regular inhabitants own 7,000 automobiles, not counting commercial vehicles. The 9,000 students of Oklahoma A. & M. College drive 6,000 cars, almost all of which are parked outdoors. Nearby farmers own 5,000 vehicles that have a homing instinct for Stillwater's shopping area, especially on Saturday. And Saturday, in season, is also football day, which sometimes piles 15,000 cars of exuberant alumni into the confusion.

All these cars—along with assorted trucks, taxis and busses—rub bumpers inside the city's five square miles. Yet the result isn't a nightmare at all. In fact, Stillwater—after winning the National Safety Council's annual awards with monotonous regularity—finally was proclaimed America's safest city. In achieving this distinction, it set a record of 3,782 consecutive days—more than ten years—without a traffic fatality.

A visiting motorist notices two things when he enters Stillwater for the first time. First, there aren't too many traffic lights and stop signs, but there are quite a few of those new "yield right of way" markers; drivers seem to cooperate more enthusiastically with police regulations if they aren't asked to stop needlessly block after block.



CHURCHES, along with the newspaper and the radio station, keep the safety theme constantly in people's minds. Nobody is allowed to forget that "the life you save may be your own"



STILLWATER'S MAIN STREET (left) and college area are always jammed with cars. The five members of the police traffic detail meet regularly (below) with the chief to plan the strategy of their campaign

Second, everyone seems to heed speed zones, especially near schools, even when there isn't a policeman in sight.

This well-conditioned response to traffic rules has become something of a civic religion in Stillwater. The city avoids the kind of safety campaign that pops off like a firecracker and is as soon forgotten. Instead, it uses a shotgun approach touching all segments of the community throughout the year.

Stillwater's safety program started unofficially in 1939 when two young policemen, Ray Bennett and Glenn D. Shirley, became concerned about a sudden increase in accidents. They decided to make traffic control their personal business beyond their regular duties. Bennett studied traffic management. Shirley took a correspondence course in law, passed the bar examination, and helped to write a traffic code for the city; he studied photography, at his own expense equipped a police photographic laboratory, and now uses pictures to document and study traffic mishaps; finally, he took a course in criminology. When Homer Boughton became police chief in 1949, he set up a formal traffic division and gave Bennett and Shirley a green light. Gradually, civic groups joined in, until today everyone in town is in the act.

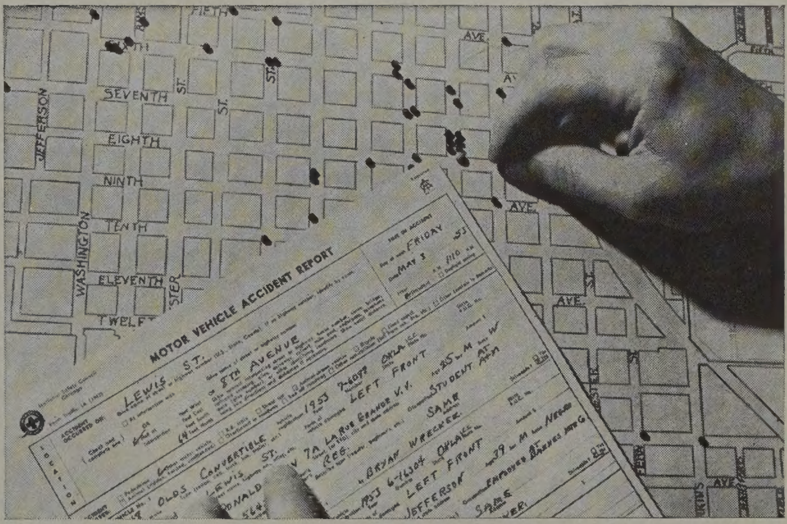
The Junior Chamber of Commerce offers free inspection of automobiles. The Lions Club provides equipment for school patrols. The high school teaches driving as an accredited course. Elementary schools have film and puppet shows that preach safety.

Girl Scouts bake and sell cookies to pay for reflector tape for bicycle handlebars and fenders. The tape is attached each year when the bicyclists buy their license plates, at twenty-five cents each. The plates are a means of discouraging bicycle thefts, but they also encourage the young owners to take an adult view of traffic laws.

Boy Scouts patrol Main Street to warn jay-walkers, politely. The Chamber of Commerce stages annual safety exhibits. Clergymen remind their parishioners about safety. Newspaper and radio station hammer at the safety theme. A greeting committee, welcoming each new family to town, presents a copy of the traffic code.

None of these specific attacks on the traffic problem is original with Stillwater, but the town has wrapped them all up in one highly efficient package. Lest anything be overlooked, forty leading citizens are banded in the Stillwater Safety Council, which keeps an eye open for potential danger spots. Its recommendations go to the Stillwater Traffic Authority—mayor, city engineer, city attorney, chief of police, head of the police traffic division—which has the power to make engineering, legal or traffic control changes.

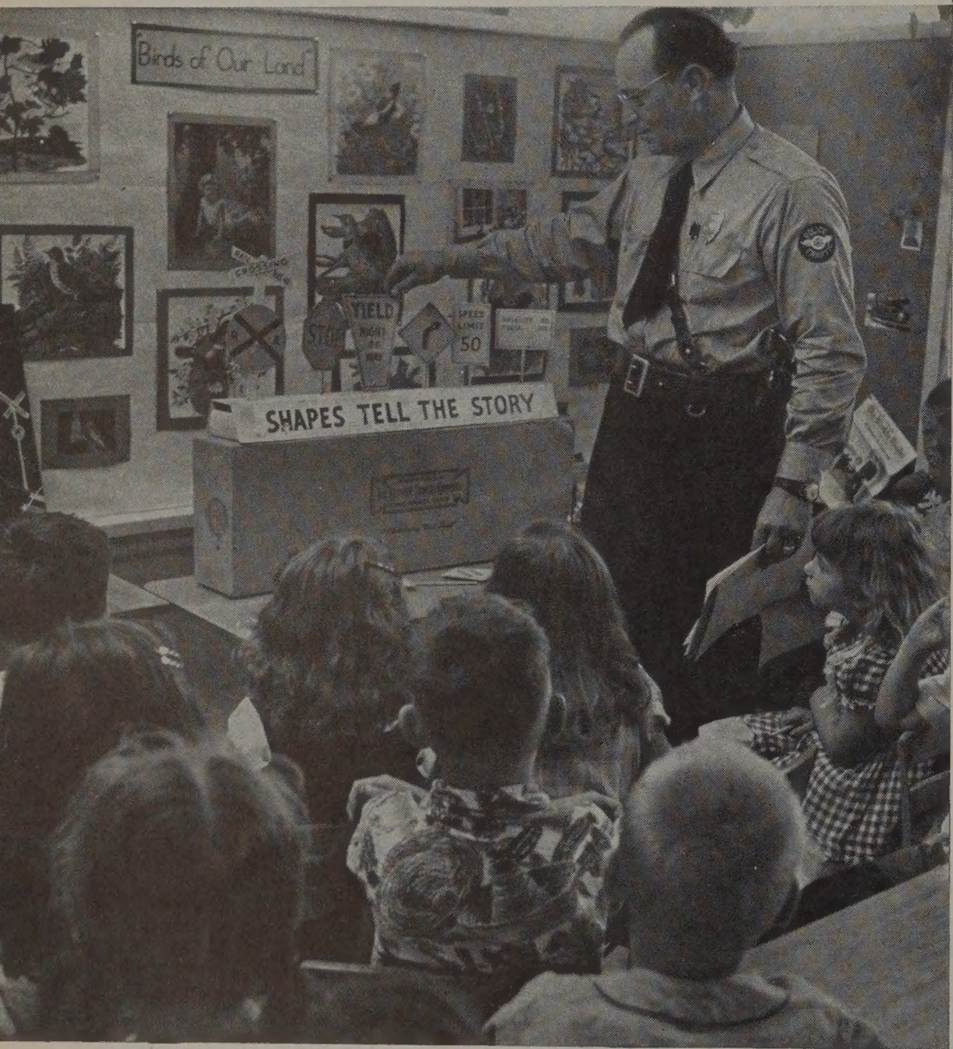
Amid all this widespread activity, Bennett and Shirley



AN ACCIDENT is studied carefully by experts (left) who try to learn the cause. Then it becomes a pin on a map of the city (above). Too many pins at one spot indicate that an engineering remedy is needed remain the sparkplugs of the safety movement. Today Lieutenant Bennett heads a traffic division of five men—out of a total force of nineteen, an unusual proportion—who patrol the city's streets. Captain Shirley, among other duties, maintains a master file of traffic offenders, a key point in the whole program. Any driver who has received even a parking ticket is listed on a "rap card"; subsequent entries mark him as a person to be watched by the traffic division. Thus no one can go on being a traffic menace indefinitely.

There are two cures for persistent violators.

The first is reasonableness. The police call a repeater in for calm talks. These man-to-man conversations frequently turn up strange reasons for poor driving. Bennett noticed that one driver, who regularly passed stop signs, seemed to be squinting. He got the man to have an eye examination, which revealed serious lack of side vision. A pair of spectacles solved the case. Another elderly man said he didn't know what the traffic signs meant; he had received his license before the days of driving tests, and no one had ever told him about those yellow warnings. He was straightened out too. On occasion the court sentences a violator to take a course in driving. The aim is to lead people into safe habits, rather than to punish them.



TOMORROW'S DRIVERS learn the safety lesson early (left). A police sergeant, who is on a first-name basis with scores of the neighborhood children, spends most of his time in the schools

The second cure is more drastic. People who won't listen to reason are reported to the state licensing authority, which may re-examine the driver or take away his license. That is the last resort.

The result of all these widespread efforts toward traffic safety is apparent on the city's record. From 1941 to 1952, Stillwater won six first awards, three second awards, two third awards and two special awards, among 348 cities in its size group, in competitions of the National Safety Council. The council has nine criteria by which it judges a community, and gives the most weight by far to the fatality record. Since 1939 Stillwater has had only two traffic deaths. In 1949 a two-year-old boy ran into the side of a moving car. In 1953 a college student, hunting rabbits from the fender of a car in the country, was thrown under the car just as it entered the city limits.

The National Safety Council's judging gives much weight, also, to the traffic law and the traffic court. It rates Stillwater's traffic code high; likewise the enforcement of the code. For example: of 1,277 drivers arrested and summoned for traffic violations last year, 1,272 paid fines. Members of the police force, in a rather serious sort of game, try to catch each other at violations—and they get no special consideration when, rarely, one policeman gives another a summons.

Indeed, in Stillwater no one gets any favors. Lieutenant Bennett was showing a visitor about town recently when he noticed a car rolling at a good clip toward a corner.

"That gal had better mind that stop sign," Bennett said, "or I'll take the car away from her."

The visitor was amazed. "Can you go as far as taking away their cars?" he asked.

"I can take that one away," Bennett said. "That's my daughter."

A JUNIOR PATROLMAN retrieves a wild ball while his partner prevents children from dashing into the street after it. Patrol members get caps, real badges, Sam Browne belts and a vast amount of prestige

BICYCLE RIDERS learn about safety from the start. Each bike must carry reflector tape, front and rear. Licenses for bicycles have helped to give riders a sense of responsibility

SIXTH GRADERS proudly examine a certificate showing that their school had a 100 per cent safety record for the year. No accident has occurred in areas guarded by the junior patrolmen

THE HIGH SCHOOL teaches driving as a regular course, with help from the police. Of 514 seniors who passed the course through 1952, only 21 have ever been cited for traffic violations

THE NEW NORTH AFRICA

An ancient land of flashing colors vibrates with modern power, and hungers for still more

BEFORE you have finished the *café noir*, your plane from Paris will land you almost anywhere in French North Africa—a sunny, spicy, semi-oriental land. From Morocco, where the United States is completing its big air bases, through Algeria and Tunisia—halfway from Gibraltar to Suez—economic awakening is in progress. The business boom in North Africa is no mere by-product of defense activity. It is the result of the systematic application of power, chiefly derived from falling water, petroleum and coal, to the vast resources of an ancient land.

Fifty years ago these countries were called "incurably poor," although everyone knew that in ancient times they had been rich. Under the Romans, canals brought water to the terraced farms from vast aqueducts of rose-brown stone, some of them still in use. Here St. Augustine, North Africa's most famous citizen, watched the death of a great civilization after the Vandals came. Sand silted over wheatfields which had fed an empire, blocked the roads and choked the mines. The Arabs in the Middle Ages brought learning and culture, but without power these admirable qualities could not restore North Africa. And at the beginning of this century there was almost no power in the region except the muscles of Arab and Berber and their beasts of burden.

Within the past quarter-century, the French have built an integrated series of twenty-six dams, variously used for flood control, irrigation and electric power generation. Four more are under construction and others planned.

They have also built nearly 6,000 miles of railroads, fully dieselized, and 20,000 miles of modern roads. Two east-west highways bind the three countries closely together, while branches bring the towns and villages into the mainstream of modern life. Some of these roads compare with the best in Europe, yet more of them are needed to cope with growing traffic. The use of 6-ton trucks, for instance, has quadrupled since the war. In all three countries, local airlines and international traffic share busy airports, and the North African harbors—for centuries useful chiefly to small-scale fishermen and big-scale pirates—have been modernized to handle 40 million tons of freight yearly, most of it carried in oil-powered ships.

NATURALLY, North African contrasts are fantastic. Trucks roaring to market with canned orange juice pass caravans of Berbers—the original inhabitants of North Africa and still its most numerous race—migrating by camel between the tribal settlements where they build red-tinted "castles" of native stone for storing dried food. Helicopters dust the fields with insecticide above the tents of proud nomadic sheikhs.

Yet more and more, North Africans are beginning to live in city apartments or new, gleaming-white factory towns. Clinics and hospitals cut down the death rate, while the birth rate remains one of the highest in the world. The growing number of youngsters who attend good technical and professional schools will be a key factor in expanding the economy to meet the needs of 22,000,000 North Africans, increasing at the rate of 400,000 a year.

Many find work in the mineral industries. North Africa is already the world's leading exporter of phosphate, and in Morocco one of the biggest and most modern of lead and zinc mines has recently opened. Iron, copper, manganese, cobalt and calcium are also mined, and more and more, these are being processed in North African factories, by skilled local labor.

Morocco, for example, makes such things as water pumps and electrical equipment. Algeria, best known to cruise-ship passengers for the colorful Kasbah of its capital city, Algiers, manufactures radiators, transformers, telephones and switchboards, hydraulic equipment and piston rings. Tunisia, which has the world's largest phosphate plant, also produces household utensils, box mattresses, farm machinery and railway switches. It has seventy-five shops turning out parts for automobiles and railway carriages.

The growing factories and their people can hardly get enough power. Morocco doubles its use of electricity every three years, Tunisia every six, Algeria every seven. North Africans search for more power with a bold imagination, coming near the borders of science fiction. In a Moroccan coal-field, underground gasification has been successfully tried, as a source of power for electric generators. Natural gas has been found under Tunisian orange groves. Wind-generators are being tried in coordination with hydroelectric plants, and engineers believe that the Sahara sun may some day generate all the electricity the region needs, by means of a boiler topped by an acre or so of flat glass.

Meanwhile, without imports of oil the expanding economy would shrivel like a pricked balloon. (North Africa, which now produces only about 1 million barrels of crude yearly, consumes some 18 million barrels of oil.) When the hydroelectric dams halt their flow in the dry autumns, oil- or coal-fired plants must take up the slack. Even the fishing fleets are turning to oil, although the handline fishermen follow the ancient ways. A tractor can double the output of the average farm with the same amount of labor.

Only a small minority of the farmers use modern methods, as yet. But all three countries have launched an intensified farm program which includes agricultural education, increased use of fertilizers, irrigation, drainage, mechanization, and soil conservation.

In the Sahara, hundreds of man-made oases, irrigated by artesian wells, yield dates, their chief crop, and also apples, pears, peaches, apricots, figs and grapes for their inhabitants and nomad traders. More and more truck caravans cross the vast desert, linking North Africa with the heart of the continent.

Tourists are happy to find that the old North Africa has not been buried under progress. In the dark, twisting lanes of the bazaars, patriarchs still beat out their finely wrought copper and brass. North African governments are stimulating handicrafts—the fine carpets, textiles and pottery, Moroccan leather, and boxes of polished rushes—while the production of cheap, factory-made imitations is on the decline. The glorious Moorish mosques and palaces draw more visitors each year.

The new North Africa, in order to endure, must successfully blend the cultures of East and West. So far, there are many signs that this experiment—watched with the most eager interest by the Moslem East—can succeed. At Marrakech the famous minaret, from which the muezzin makes his sunset call to prayer, is brightly flood-lit after dark.

IN ALGERIA, electric power lines hum where the melodious chanting of the Moslem's call to prayer still echoes across the desert sands as it has for centuries past

CAMELS, donkeys and sheep always get the right of way on the North African roads. Car drivers pull over to the side when they pass these essential but unpredictable animals

SPRAYING THE VINES with a fungicide is part of the scientific care by which Algeria maintains its huge and increasing export of wines, chiefly the red varieties, to the French market

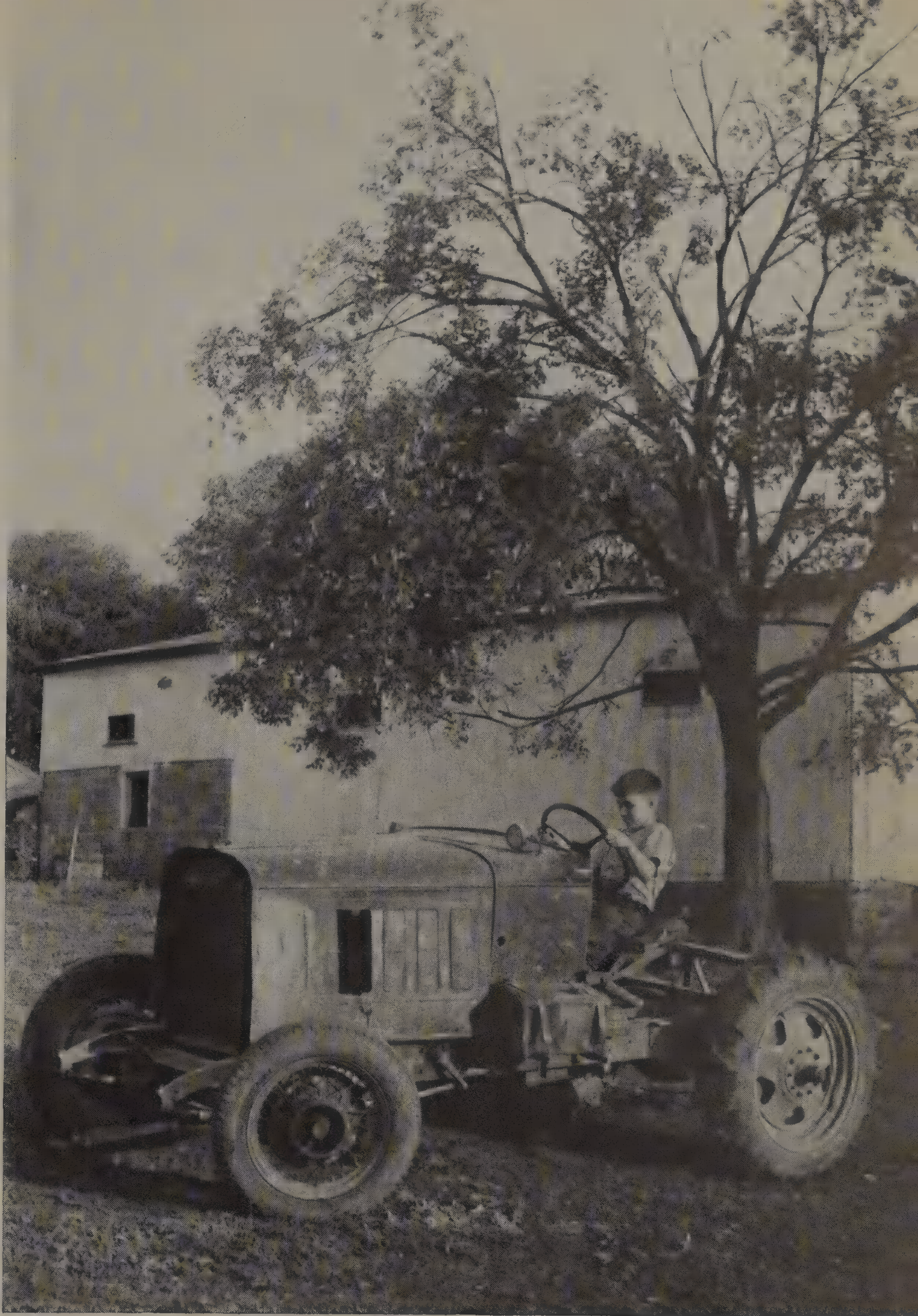
DEEP PLOWING and contour plowing were unknown to the centuries of farmers who scratched the potentially rich soil of Algeria and Morocco with primitive plows

OIL-POWERED TRACTORS and improved agricultural methods sometimes enable farmers to harvest several crops in a single year from the fertile soil of northern Algeria and Morocco

THE GHRIB DAM is one of many in an irrigation program designed to expand Algerian farmland by hundreds of thousands of acres

BERBER WOMEN like these near Fez in Morocco still plod slowly home from the threshing with huge bales of straw balanced on their heads

THE OLD WELLS in some Algerian villages consist even today of ancient water wheels turned, when needed, by patient mules or camels



HOT-ROD TRACTOR

MECHANICS blossom young on the farm. For example, ten-year-old Abe Hardenburg, who lives with his parents and grandparents (and two hound dogs, two pet coons, a puppy and kittens) on a farm between the Sourland and Pickle Mountains of New Jersey, can drive almost anything on the place. But he likes best a tractor his father made years ago, after a friend gave him an ancient Oldsmobile frame.

The Jeep, as Abe calls it, is an interesting blend of vintage Buick, Plymouth, International truck and Chevrolet, with traces of the basic Olds. It has, according to Mr. Hardenburg, thirteen forward speeds (made possible by combining its truck and auto transmissions). Recently, the Jeep outpulled their factory-built tractor, back-to-back. Last summer, they dug a stock pond with it.

After handling such big power, Abe finds his little garden tractor (a Christmas present) a slight comedown. With its aid, however, and with help from his mother in arranging the exhibit, he took ribbons for his vegetables at the Flemington fair. Abe has other jobs as well. "He feeds the dogs, throws down hay once in a while out of the mow, feeds the cows—sometimes," his father says. "But his favorite thing is driving the tractors."

Roy Hardenburg, his father, keeps dairy cows, poultry and sheep on this 144-acre farm where he was born. It is a modest family enterprise, but it still takes about $10,000 worth of machinery and 200 gallons of gasoline a month to run it. Besides the equipment he has bought, Mr. Hardenburg uses a wealth of home-rigged contraptions—a hay elevator, a barn cleaner, an old refrigerator compressor which inflates tires.

Their hired man—a city fellow—is just beginning to understand machinery.

BLUEPRINTS FOR PEOPLE

Prepared by precision training, a staff of Belgians now runs the new Antwerp refinery

ON a hot, dry afternoon in the summer of 1952, a group of young Belgian engineers stood in the yard of the Billings, Montana, refinery of The Carter Oil Company, listening intently to the refinery sounds: the low, beating throb of the pumps; the high, whistling whine of gases rushing through pipe under pressure.

For months they had been learning, through lectures and by working with dummy equipment, all about how an oil refinery works. But until now—their first day in an actual refinery—they had no idea how it sounded. To learn to distinguish the normal from the abnormal in the mingled symphony of refinery sounds was an important part of the practical operating experience for which they had journeyed from Antwerp to Billings.

This phase of their training over, these men would go back to Antwerp to become part of the staff of the new Esso refinery, then in process of construction. Other groups, at the same time, were undergoing similar training at the refineries at Baton Rouge and elsewhere. All would return ready and equipped to take up jobs which existed so far only on paper, for they were participants in the most intensive training program in the experience of companies affiliated with Jersey.

Jersey's foreign affiliates have always made it a point to staff their operations as rapidly as possible with citizens of the countries where they do business. But since refining is both intricate and highly technical, it has usually been necessary to start up a new refinery with a corps of experts brought in from other refineries and to make the transition to 100 per cent employment of local people gradually, particularly in the more highly skilled jobs. This is a time-consuming process which often goes on over years.

At Antwerp, however, it was decided to try to staff the new refinery almost entirely with Belgians from the very outset.

PLANNING a new refinery, with its thousands of blueprints and knotty procurement problems, is a complex undertaking in itself. But at Antwerp it was hardly more formidable than was the parallel task of finding and training in the space of a little less than two years the 350 men and women to make it run.

Once such a venture would not have been considered possible. But Jersey's training specialists now had behind them the experience of helping to staff new refineries at Amuay Bay in Venezuela and Fawley in England. They knew that people everywhere are likely to respond in pretty much the same way to the same incentives. At Antwerp, there was the disadvantage of having no existing modern refinery in the country on which to draw for a nucleus, but there was also the advantage of Belgium's high tradition of craftsmanship and her large reservoir of skilled workmen.

The reasons why this refinery was to be built at Antwerp trace back to some of the basic economic developments which took place in postwar Europe.

Esso Standard of Belgium had been marketing oil products in that country for some sixty years; and as Belgium, along with its "Benelux" neighbors, The Netherlands and Luxembourg, recovered from the effects of the war, their increasing use of oil expanded the Esso markets to a size which justified a local refinery to supply them. The Belgian government, too, was anxious to raise the country's industrial capacity. There was still another consideration—that, because it would substitute crude oil from the Middle East for refined products from the Western Hemisphere, such a refinery would lower the dollar cost of oil imports to the countries it served.

The negotiations which followed between the Belgian government and Standard Oil Company (New Jersey) resulted in the formation of a new company in Belgium to build and operate a 25,000-barrel-a-day refinery at Antwerp.

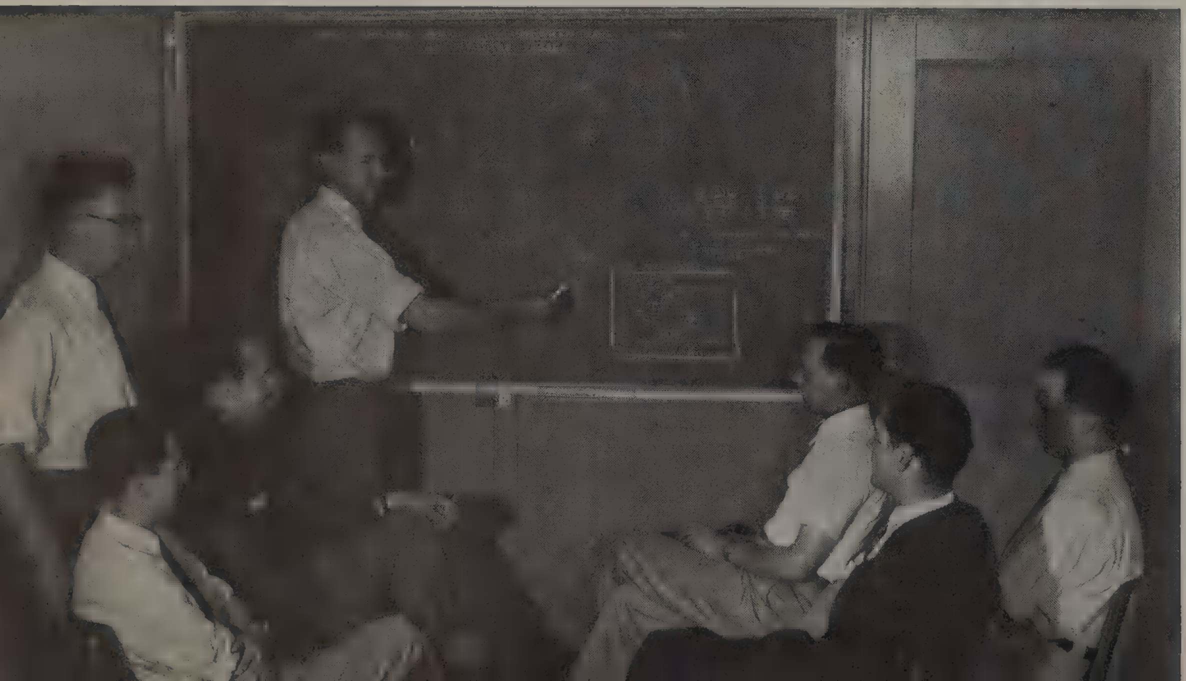
WHILE the refinery was still in the blueprint stage, back in New York a staff of training experts, detached from other duties, began planning the human development program with as much care as the engineers were giving to the structures and the equipment they were designing.

First they listed the number and kinds of jobs it would take to turn 25,000 barrels a day of crude oil into products. Then, in collaboration with the training staff of the newly formed company at Antwerp, they worked out the experience and traits of character each man should have to do his job.

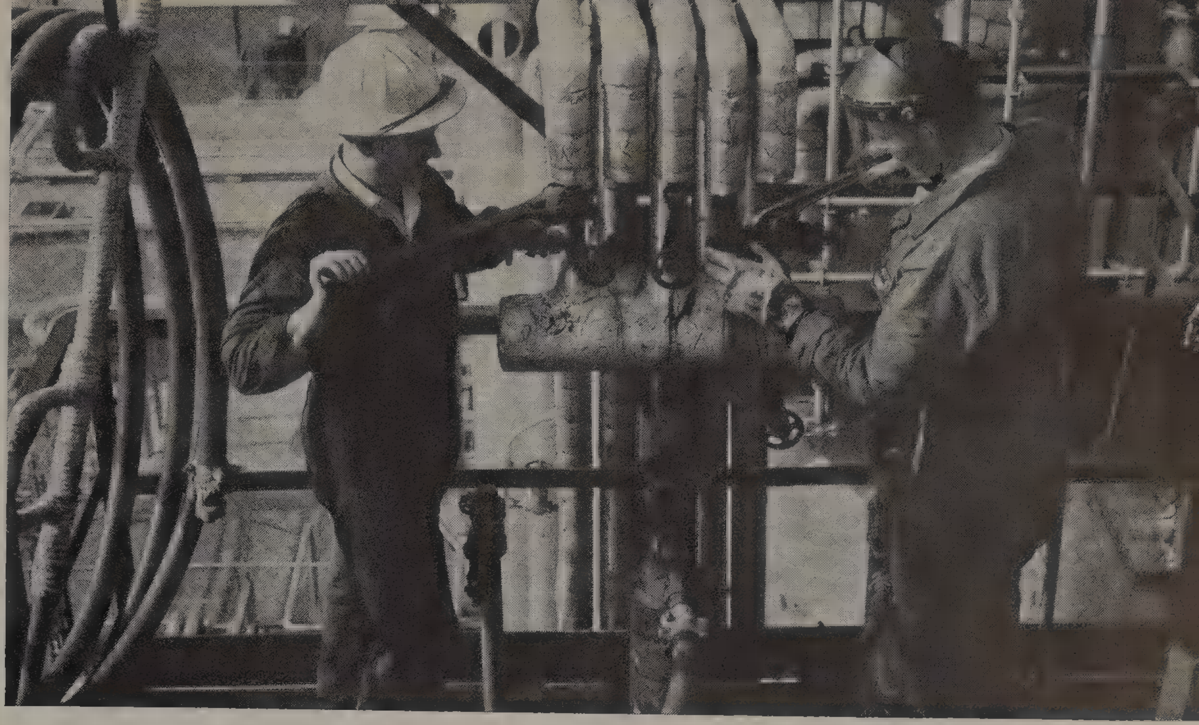
When it came to training, two sets of specifications were set up: the skills and knowledge a man would have to have to get the refinery started; and those it was desirable to add to enable him to do an outstanding job. The first would be the essential level of training to be reached before operations began. The second could come along later.

Once start-up dates had been determined for each unit, extending through the spring and summer of 1953, the planners blocked out an exact training timetable, working backward from the start-up dates.

First to be hired were the thirty-odd supervisors, each of whom would have full charge of his own part of the process or mechanical work. These men would need the most time, not only for what they had to learn themselves but for



CHIEF MECHANICAL ENGINEER passes along what he has learned to other engineers



PIPEFITTERS replacing valves carry out in practice what they've learned in the classroom

helping to select the men who would make up their crews, and finally for training these men.

Next to be chosen would be the operators, and so on down the line to the least skilled workers, who could be hired as late as three months before start-up time, there being no one else for them to train in turn.

With the exception of five Dutch nationals—three from Indonesia, with long experience at the Palembang refinery, and one from Aruba—all of the supervisors were Belgians, recruited from other industries. Most of them had never seen the inside of a refinery before. A few were transferred to their new positions from Esso Belgium, the marketing company, and hence did have some previous experience in the oil business.

There were times when there just did not seem to be enough hours in the day for all that the supervisors had to do. They had to get a grasp of Jersey's worldwide operations and the workings of the modern oil business; they had to absorb Jersey's philosophy of employee relations. They had to study the whole process of refining, and learn how every other unit related to their own. As a final step, each supervisor had to write the manual or basic guide to his own particular part of the process or mechanical operation. These manuals were several inches thick, containing everything from blueprints and operating procedures to instructions for things to do in an emergency. Each manual had to be tailor-made, for the Antwerp refinery was of entirely new design, and there was no precise precedent to go by.

Once the supervisors had educated themselves, they turned teacher and used the manuals to train the men under them. These men in turn trained the men under *them.* This process was carried out so thoroughly that stillmen who had never worked as stillmen were training helpers from the instruction book.

THE writing of the manuals was complicated by the language problem. Belgium has two national languages, Flemish and French. Each Belgian uses one of these as his native tongue, and he may have anything from a smattering to full fluency in the other. To make certain he understood thoroughly every detail of his work, it was important that it be described in the language he knew best. Therefore the manuals had to be written in both Flemish and French, plus English to facilitate checking by American experts.

At first it was thought that a major complication would be posed by the strange new terms which refining has brought into the language. But with characteristic practicality the Belgians solved the problem very simply by adopting the English words as elements in their own language, much as they had accepted the terminology of baseball. It became possible then to designate all equipment by the English word, except for warning signs such as "No Smoking," or the safety instructions, which were in all three languages.

MEANWHILE screening of the rest of the staff was going forward. "Help Wanted" ads were put in the newspapers, and men responded from all walks of life. Engineers and technicians, some fresh from universities and technical schools, some from other industries, were recruited for the operating crews. Beyond their working experience, candidates were chosen mainly for their ability to communicate and for mental alertness.

One sizable group of applications came from marine engineers. At first this seemed surprising. Then it became apparent that these men, having gone to sea as youths, had now reached the point where they had acquired families and responsibilities and were ready to settle down ashore.

Here was a ready-made core for the operating crew. There was, after all, a kind of parallel between their jobs aboard ship and in a refinery. At sea, if trouble occurred, it was the marine engineer's responsibility to deal with it quickly, to keep the ship running at all costs and bring her safely into port. It is also important to keep a refinery running under all circumstances, for unplanned shutdowns can be disastrous.

March 15 rolled around, and steam went up in the boilers. By June 5, all units were scheduled to be in operation. The men, waiting, were like racehorses at the barrier. Then, at this critical moment, trouble developed. A piece of key equipment in the power supply failed, preventing the start-up of one of the major refinery units.

The Antwerp refinery is of the latest design, in which the three basic processes are linked to operate normally as one. The failure might have postponed the start-up date for the refinery as a whole. This could have meant a frustrating delay which might have destroyed much of the eager spirit which now infused the staff. Ways were found therefore to start up the refinery, a unit at a time, so that this morale problem could be avoided.

Operations were barely under way when the first emergency arose. A violent electrical storm cut off the power. The refinery was plunged into darkness and all the pumps stopped at once. This can cause difficulties, for static oil in pipes and vessels can "coke up" quickly, making equipment as hard to clean again as a cooking pot left to burn on the stove. To keep this from happening, steam must be blasted into the lines. This means there are many things for each man to do, and they must be done at once. Working in the dark with flashlights, everyone carried out his assignments in perfect order.

With the opening of the refinery, the first phase of training was over. But the long-range program had barely begun. Each man had been taught what was needed to get the refinery started. He would continue now to learn what was desirable to help him perform his job more efficiently.

After that would come a third phase—preparing each man to learn the job ahead, to give him the chance to make the most of himself and his skills, within the limitations of his talents and the opportunities the refinery offered.

This phase of training would go on as long as the plant turned out oil products and there were jobs for men to do.

MAINE LIGHTHOUSE

For more than 150 years, Seguin Light has signaled its warning to seafarers along the rockbound coast

SEGUIN is one of the three primary lights on the Atlantic coast that still use kerosene

WHEN mists roll down the coast of Maine and cloak the jagged outlines of its rocks, Seguin Island, two miles below the mouth of the Kennebec River, looks like a giant tortoise wallowing in the ocean.

Three times a minute the tortoise grunts. This is a welcome sound to coastwise seamen. "Grunt" is their own word for the final deep-throated blast of the foghorn, the one part of the signal heard even when the rest has been drowned out by crashing waves and whistling winds.

Seamen since 1795 have been looking and listening for signals from the lighthouse that stands high on the grass-fringed head of the Seguin tortoise. At first it was a crude wooden tower, but salt winds nibbled at its beams until, in the early 1800's, it began to crumble. Congress immediately ordered a new tower, built of stone, and this lasted forty years, but it finally succumbed to the fury of North Atlantic gales and was swept into the sea.

In 1857 another stone tower was erected, and this one still stands, the steady white light of its lantern giving the same warning to modern merchantmen and fishing vessels that it once did to Yankee Clippers and four-masted schooners.

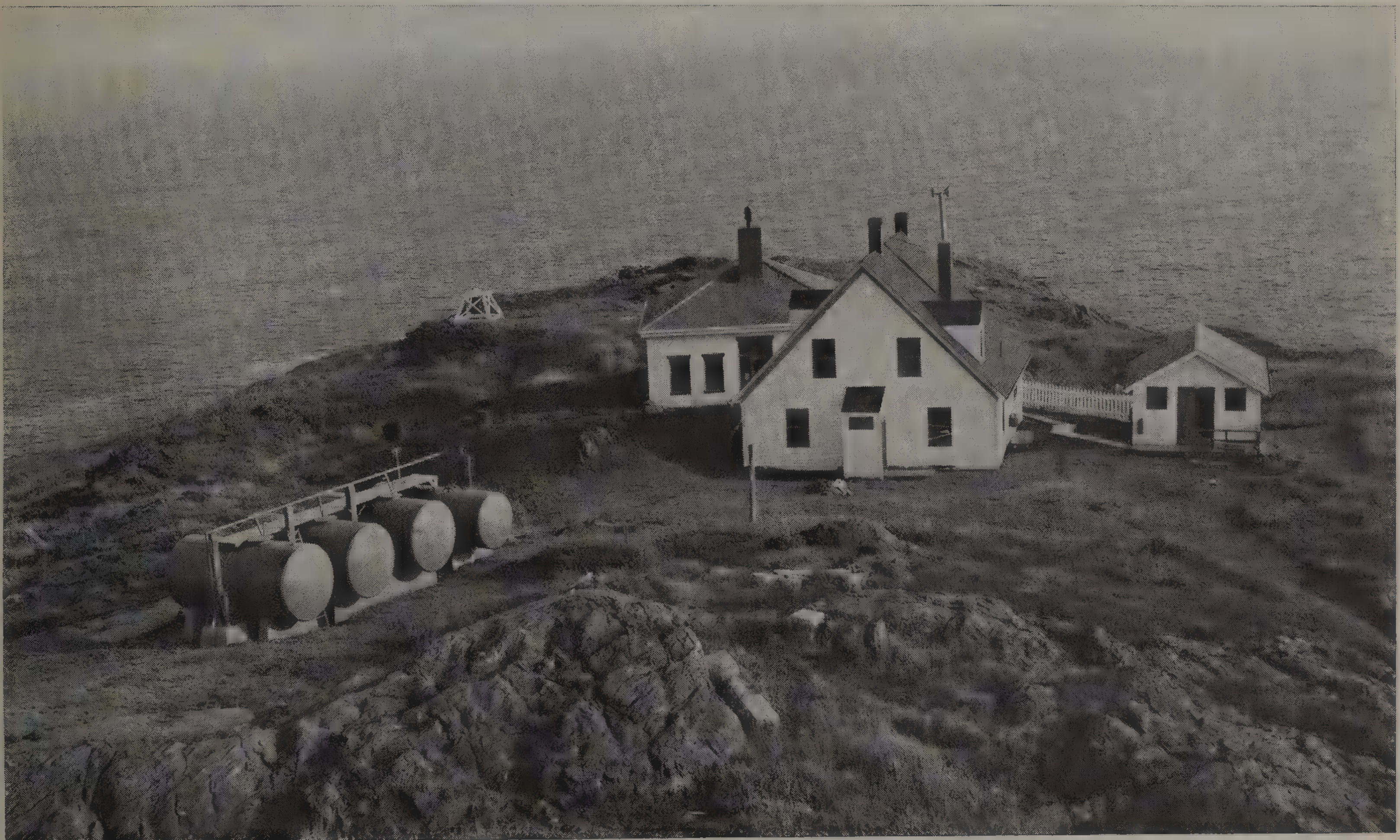
Of the many lighthouses that dot the coast of Maine, Seguin is the highest, standing 180 feet above the water level. Its glow—the equivalent of 20,000 candles—can be seen, on a fair night, twenty miles out to sea.

While most lighthouses today are lighted by electricity, the fuel for Seguin's lantern is kerosene, which, along with diesel oil for the engines that run the foghorn, is delivered by Coast Guard tender and stored in the tanks that stand behind the white ship-shape houses adjoining the tower.

In these houses live the lighthouse keeper, his assistant, and their families. Though the keeper and his assistant are members of the U. S. Coast Guard, which took over the lighthouse service in 1939, their duties do not differ markedly from those of the earliest lighthouse keepers.

To light the lantern, the keeper (or his assistant) climbs the iron circular stairway up to the turret of the tower, and there he holds an alcohol lamp beneath a cylinder of kerosene. When the kerosene boils, its vapors ignite and pass into the lacy fiber of the Welsbach mantle, which then glows with a blinding incandescence.

Through the year, however, on an average of one night in four, the great light will be only a gauzy blob, screened by a thick curtain of fog. Then, the keeper will start the engines that power his foghorn, and the long lugubrious voice of the tortoise, with its odd piercing grunt at the end, will blast through the curtain, a note of warning and of reassurance to seafarers of the Maine coast.



THE STEADY WHITE BEAM of Seguin Light was once sighted 42 miles down the coast by the skipper of a passenger ship. In a night's vigil the lantern uses from two to two and a half gallons of the kerosene stored in the tanks above. Diesel oil for the foghorn is also kept here

MUSIC FROM OIL DRUMS

Melodic and haunting, it is sweeping the West Indies

TODAY, on many a Caribbean island more people dance to the music of the oil barrel than to any other instrument. Traditional orchestras are still popular, but the oil barrel has become a part of the rich musical history of the West Indies.

Trimmed with a hacksaw, tuned with a sledgehammer, the oil barrel has a fragile, muted, bell-like tone that has created a new kind of music, melodic and haunting, which is becoming as expressive a part of West Indian culture as the spontaneous rhymes of the calypso singers. Orchestras of oil barrels are called "steel percussion bands," and there are hundreds of them.

In these orchestras, barrels play every musical role; they are pianos, violins, trumpets. Though the voice of the barrel was first heard less than ten years ago, today it has been refined to the point where it can be as true to a polonaise by Chopin as to a calypso by the Growler. It is devoted to the rhythms of the rhumba and the mambo, but some steel bands aspire to symphonic heights, with as many as thirty pieces—all barrels that once stood mutely in barges and warehouses, filled with petroleum products.

You can hear their soft thrumming music on the island of Aruba, played by the Aruba All-Star Boys, a twelve-piece steel band organized by employees in the refinery of Lago Oil & Transport Company, a Jersey affiliate. Some of their drums are shallow and hang by straps from the musicians' shoulders. Others stand on the ground, waist high. The musicians beat them in a whirling oval motion with rubber-tipped sticks.

The Lago musicians come naturally by their talent and enthusiasm for the barrel turned musical instrument; they are all natives of Caribbean islands, and their leader comes from Trinidad, where the barrel sounded its first note in harmony. It is there that steel band music has captivated the entire population and nearly drowned out the sound of traditional instruments. The steel bands are, in fact, a lively expression of the culture of a people who seem to breathe an air that is one part oxygen to two parts melody. To see what part the oil barrel can play in the life of a musical people, you must go to Trinidad.

In Port of Spain, on the way to your hotel from the airport, you talk to the taxi driver, a young man with flashing eyes who appears to be an authority on steel bands as, you will soon discover, is everybody else in the city.

He says, "They all now is crazy for the steel bahnd! Oh my, yes!" There are, he guesses, at least 200 steel bands on the island, judging from the din they made at Carnival last year. They play for dancing in all the hotels and cafes, he says.

THEN, with awe in his voice, he tells you that the Taspo All-Star Steel Band traveled to England for the British Festival and the "professors listened all day." Several other bands have been invited to give concerts and television performances in the United States, and they have attracted the attention of serious musicians, some of whom think that a refined version of the drums—the taxi driver calls them "pans"—will one day play in symphonic orchestras. But the steel bands seem to have had more than the usual difficulty in attempting to introduce a new kind of entertainment. One band, for example, almost missed a television engagement because the customs officer in New York would not allow their pans to come into the country as musical instruments. After some hesitation, he listed them as "junk" and let them pass.

"That mahn," mutters the cab driver darkly, "he have a tin ear."

As you get out of the cab, the driver touches you confidentially on the arm. If you want to get the lowdown on steel bands, he says, take a walk up to John John Hill.

John John Hill is a section of narrow streets that snake between crumpled-up shacks of tin and wood. The melting tones of a steel band throb through the air, and you follow the sound until you come to some teen-agers sitting in the street, striking their pans with great gusto. Nearby a solemn-faced girl, face lifted, eyes closed, dances by herself, completely rapt in the hypnotic rhythm of the music. From somewhere a rollicking voice sings words you can just barely make out: "Ole lady yuh mashin' me toe," a famous calypso lyric.

This is where the steel bands were started, and now it is here that most of the pans are made. It's the best place in the world to find out what magic touch brings melody out of an oil barrel.

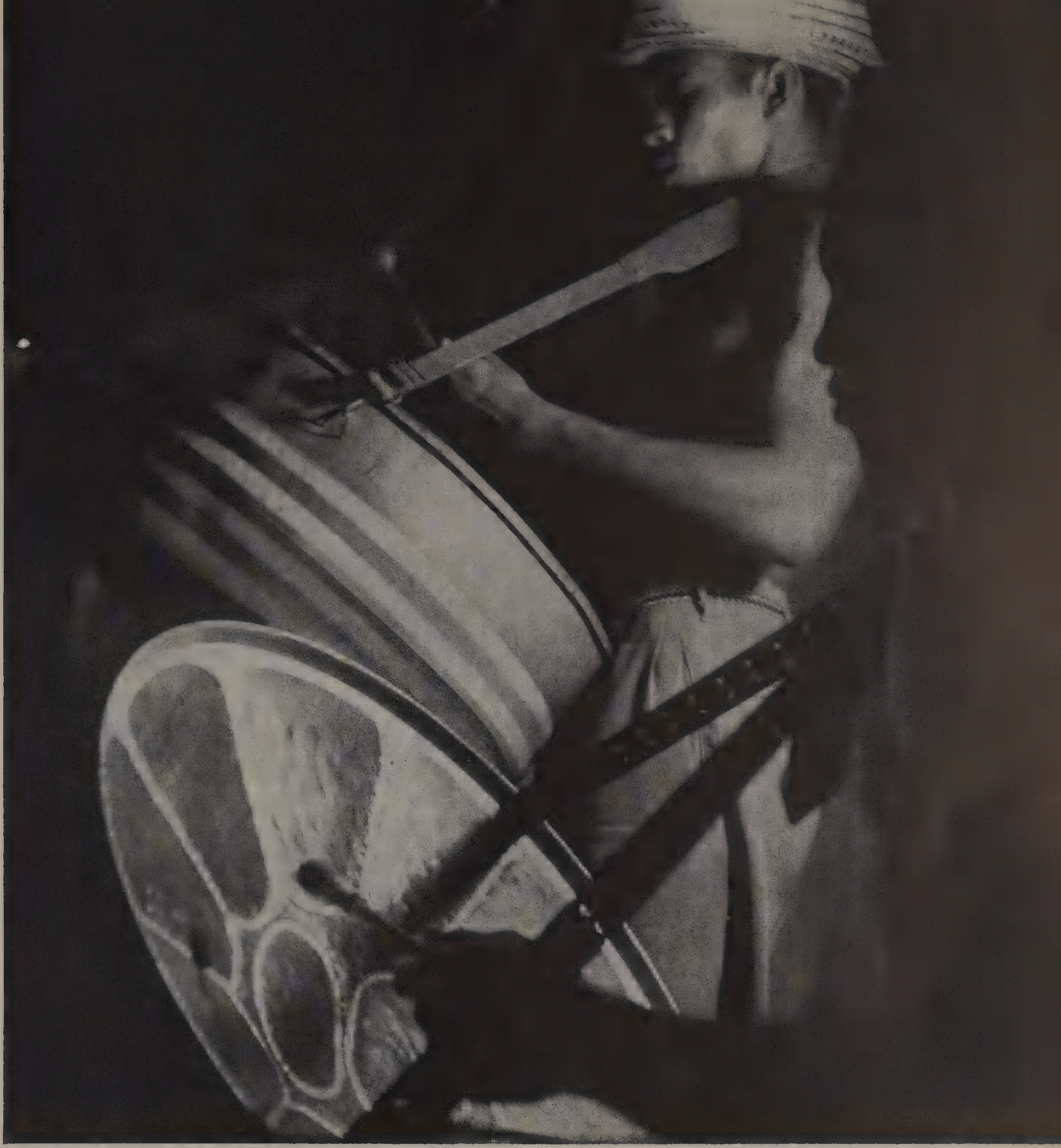
The first thing you learn is that every pan is carefully designed to fill a particular role in the band in which it is going to be played; every pan is a counterpart of, for example, the violin, trumpet or drum of the traditional orchestra. Basically, pans are in one of three categories: the Ping Pongs, which carry the melody; the Tune Booms, which make up the harmony section; and the Bass Booms, which are rhythm instruments.

You learn also that it takes the ear of a gifted musician and the hand of a blacksmith to wring these changes in the mute oil barrel. If, for instance, a steel bandsman wants a new Ping Pong, he first cuts his barrel with a hacksaw about four inches from the bottom, which is to be the face of the drum. He heats the pan over a fire, and then pounds the face with a sledgehammer until it is smoothly concave, about two inches deep in the center. With white paint, he marks off thirty-two loops on the face, forming a petal-like scalloping around the edge, with larger loops in the center. These markings show where the separate notes will be.

Then he squats on the ground, and with a hammer and an awl cuts a shallow groove along the painted lines, separating each note from the other, so that there will be no blending. He carefully taps the underside of the drum, raising each note a little, until he gets the tone and pitch he wants. Every note, of course, must be made to harmonize with every other note, and each pan must harmonize with the other pans in the band.

IN the early days of the pans' development, there was little thought of such precise tuning. The first pans had two notes, but after they had been refined to four, and then eight, the steel bandsmen became aware of the possibility of creating a new kind of music. They have thought of little but improving their pans ever since. Many of them feel that their new music will someday be popular the world over. Already there are bands in London and New York that play for an occasional dance or for engagements in cabarets.

There are many stories on John John Hill about how the pans started, but everyone agrees that they weren't heard until after World War II. The story most widely told is of a young man who was drumming on a cracker tin when its face was struck by a large rock. Attempting to smooth out the face, he began to tap it with a hammer. Its tone had become mellower. He tapped



OIL BARRELS turned into musical instruments have a soft dulcet tone that is sometimes compared to the tone of a xylophone or a Hawaiian guitar. But most people feel that oil barrel music is like no other music they have ever heard

it in another place. A different note. Soon he found that the smashed cracker tin had five notes. He could play *Mary Had A Little Lamb*. It sounded so good he went parading through the streets beating his drum. Everyone in the neighborhood promptly went foraging in the junkyards looking for cracker tins. Some came back with oil barrels, and it was soon found that, due to the quality of the steel, they had a superior tone. In the early days, steel bands used just about everything they could pick up in a junk heap, but today pans are always made from oil barrels.

Though some of the recent history of the steel bands is confused, the distant cultural origins appear plain enough. They are, according to ethnologists, the direct descendants of the voodoo drums.

Voodoo drums were brought from the jungles of Africa in the late eighteenth century. It was a time of slavery on Trinidad, and the drums often accompanied singers who passed clandestine messages in their songs. This, incidentally, was the origin of the spontaneous rhymes of the calypso singers who today vie with one another in duels of lyrical improvisation. When authorities discovered that messages were being passed, they banned the voodoo drum from the island. For a time, Trinidadians resorted to rhythmic handclapping—a pale substitute—while they searched for something better.

That search, which was the search of a people with a marrow-deep love of rhythm and melody to find a means of expression they could afford, led eventually to the steel bands. On the way, however, Trinidadians created some startling musical innovations. There were the ashcan and bottle bands of the thirties, for instance, which used to march through the streets with the deafening clang and bang of a syncopated boiler factory. Even the musicians could hardly stand the noise, but it did provide rhythm for the dancing of Carnival revelers. To a Trinidadian, a Carnival without dancing would be, in the new vernacular growing up around the steel bands, "pan bust"—a dud.

Today, it is the steel bands that set the tempo of Trinidad's gaudy, pre-Lenten Carnival, said to be the gayest in the world. For two days, every steel band on the island leads everyone else on the island in a great dizzy whirl of dancing through the streets of Port of Spain. On Fat Tuesday night, as the hands of the clock brush twelve, there is a cry of "Last lap!" and you hear the thunder of a thousand pans being struck at once. That sound tells you to what heights of exuberance the musically irrepressible people of the East Caribbean have brought the stolid oil barrel.

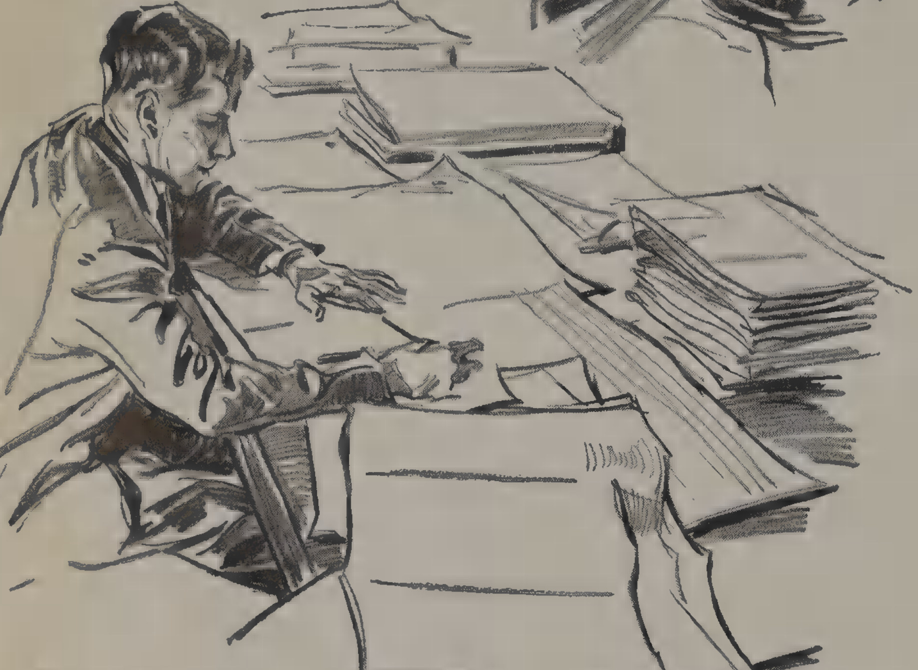
A Jersey receptionist at work; her job is all courtesy, tact and charm

A Jersey lawyer gets down to cases, with some help from the librarian

'30 ROCK'

IF you were to take a walk through the Jersey Standard offices at 30 Rockefeller Plaza, in the heart of midtown Manhattan, you would probably come away with a collection of impressions at least roughly similar to these sketches by artist Bettina Steinke. You would also remember, perhaps, the murmur of voices in conference rooms and the incessant click, hum and buzz of the giant switchboard on the 24th floor.

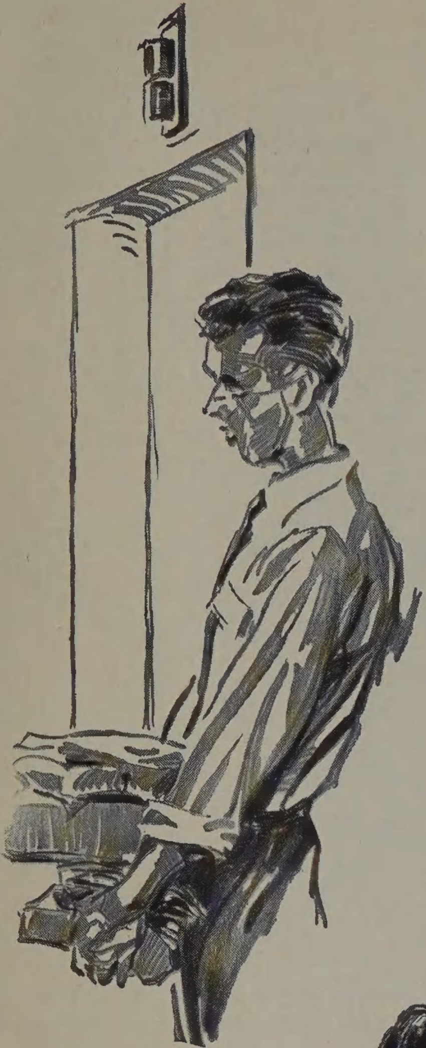
For "30 Rock" is in touch with operations that encircle the world. One of Jersey's chief functions is to help coordinate the varied activities of its large family of affiliated companies so that they may work most efficiently under all the changing circumstances that affect an international business. The work that goes on daily at "30 Rock" is, briefly, that of studying and analyzing the oil business in all its aspects, and passing on to the managements of the various Jersey affiliates whatever technical and financial assistance they may require. These scenes show people at work in a few of the many kinds of jobs essential to the company's functions.



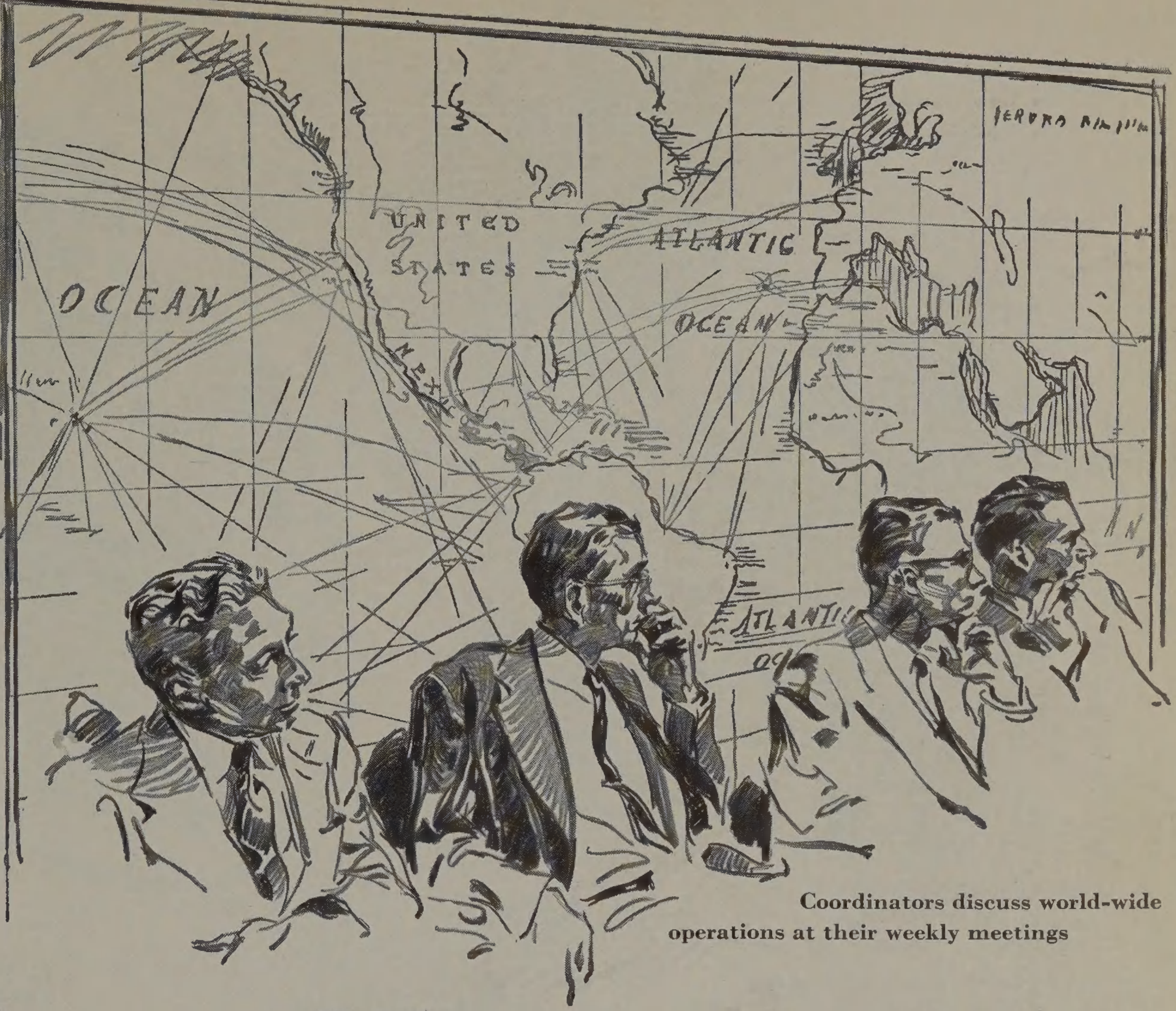
Figures gathered by comptroller's give the over-all picture of Jersey

A doctor of the medical department uses a viewer to examine an X ray

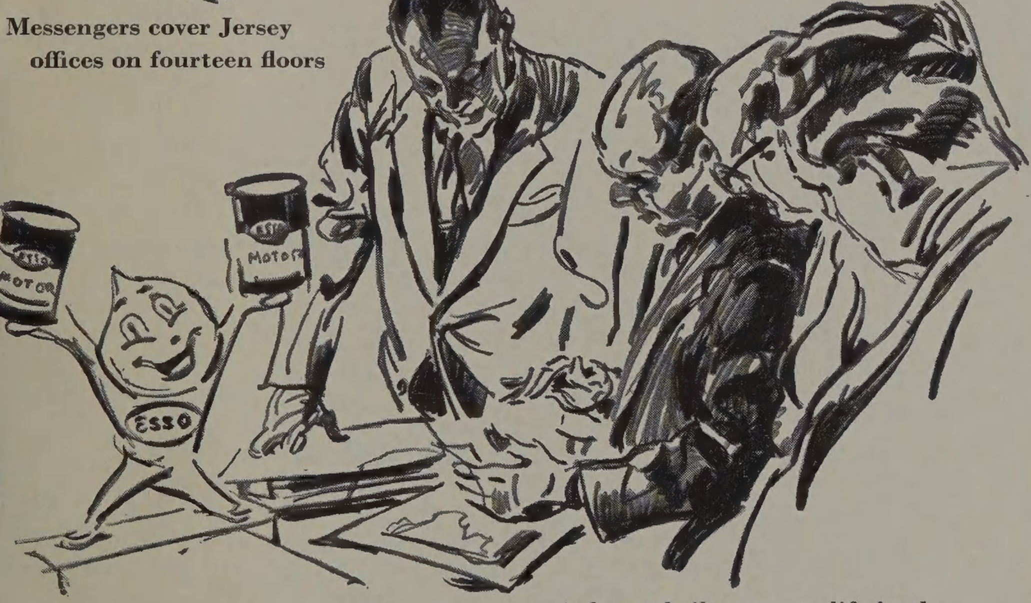
The girl and the machine are writing salary checks for Jersey employees



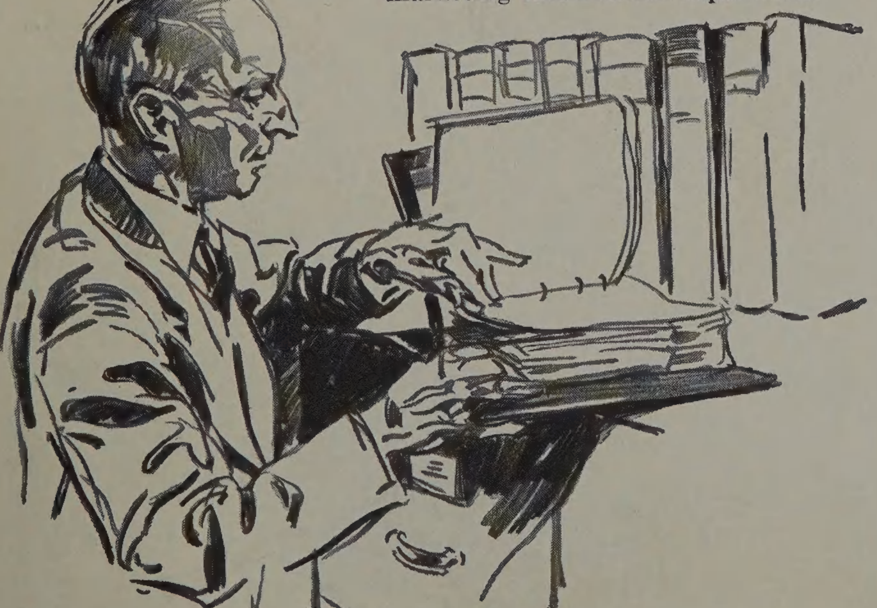
Messengers cover Jersey offices on fourteen floors



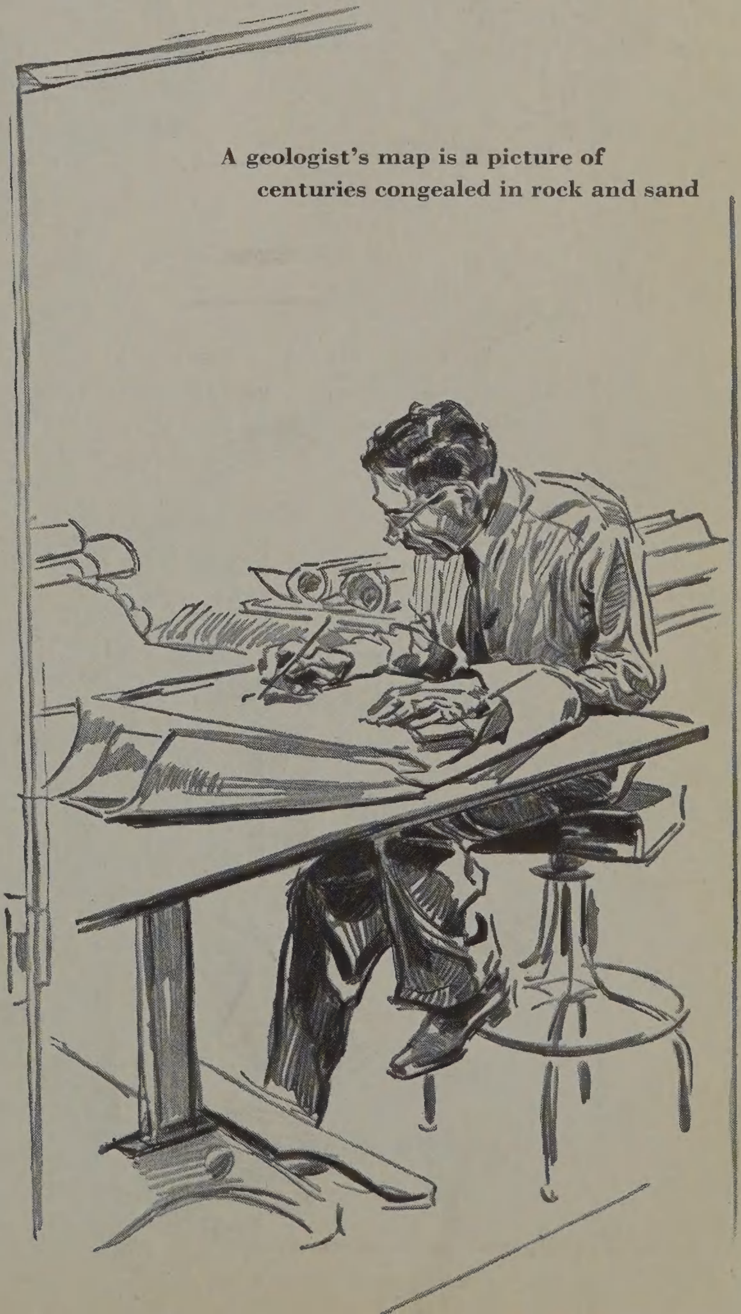
Coordinators discuss world-wide operations at their weekly meetings



A drop of oil comes to life in the marketing coordination department

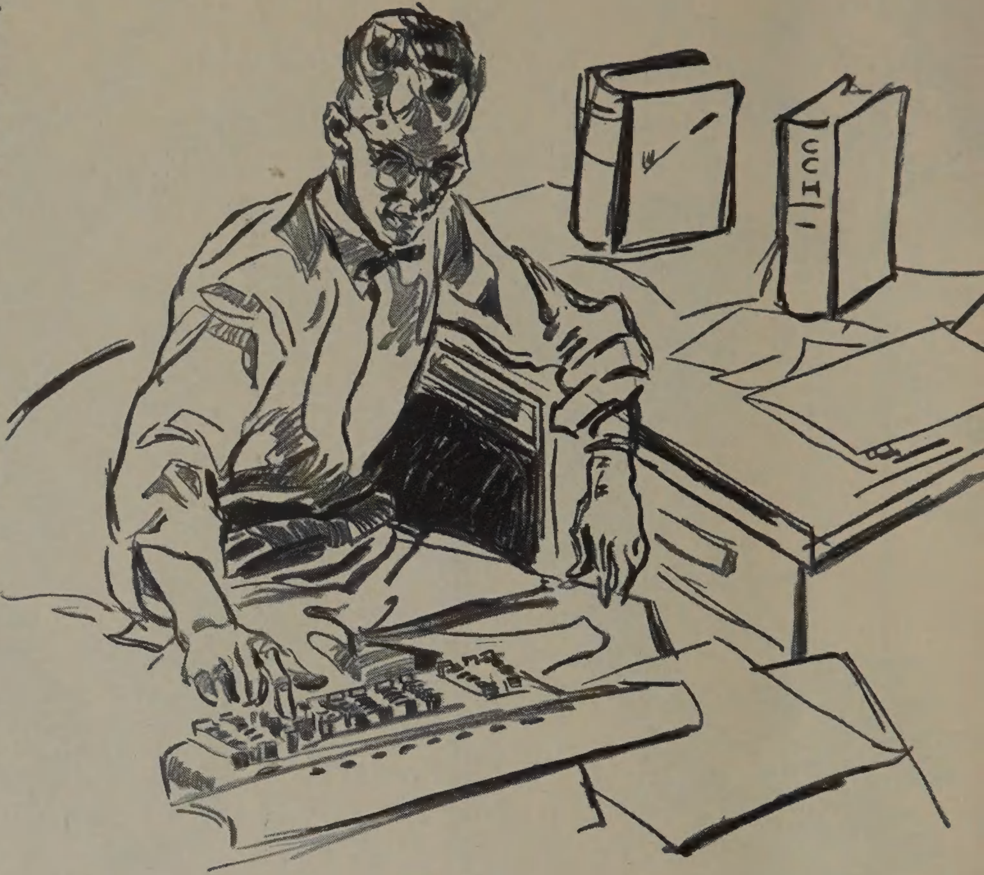


An insurance and social security specialist pores over a benefit-plans manual

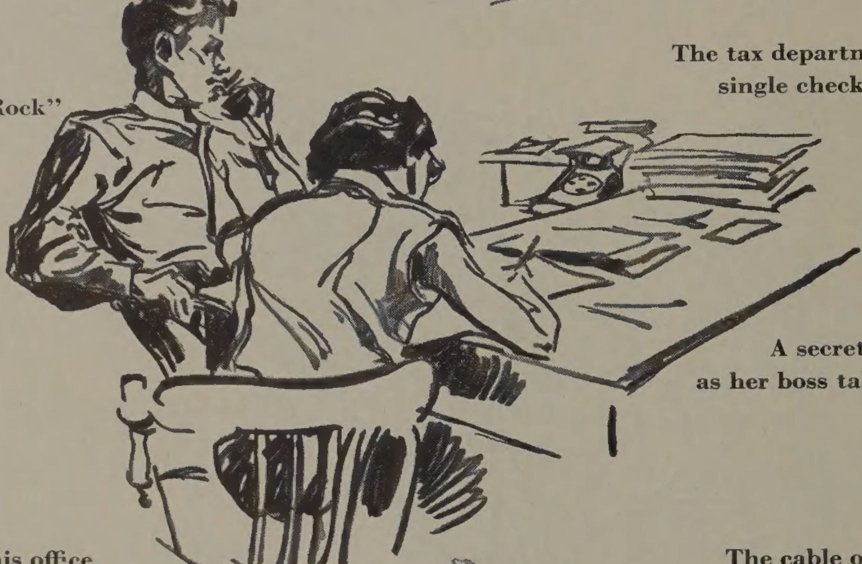


A geologist's map is a picture of centuries congealed in rock and sand

All day long the switchboard buzzes
busily with calls to and from "30 Rock"



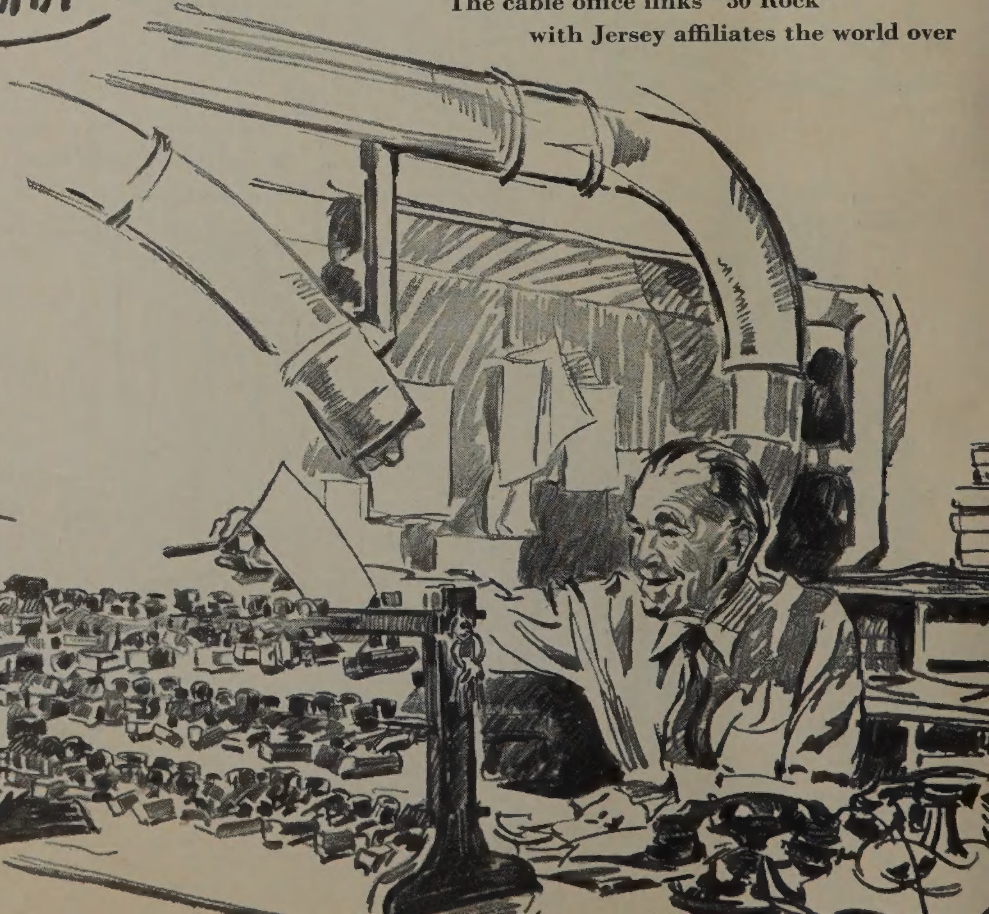
The tax department sometimes sends out a
single check for more than a million dollars

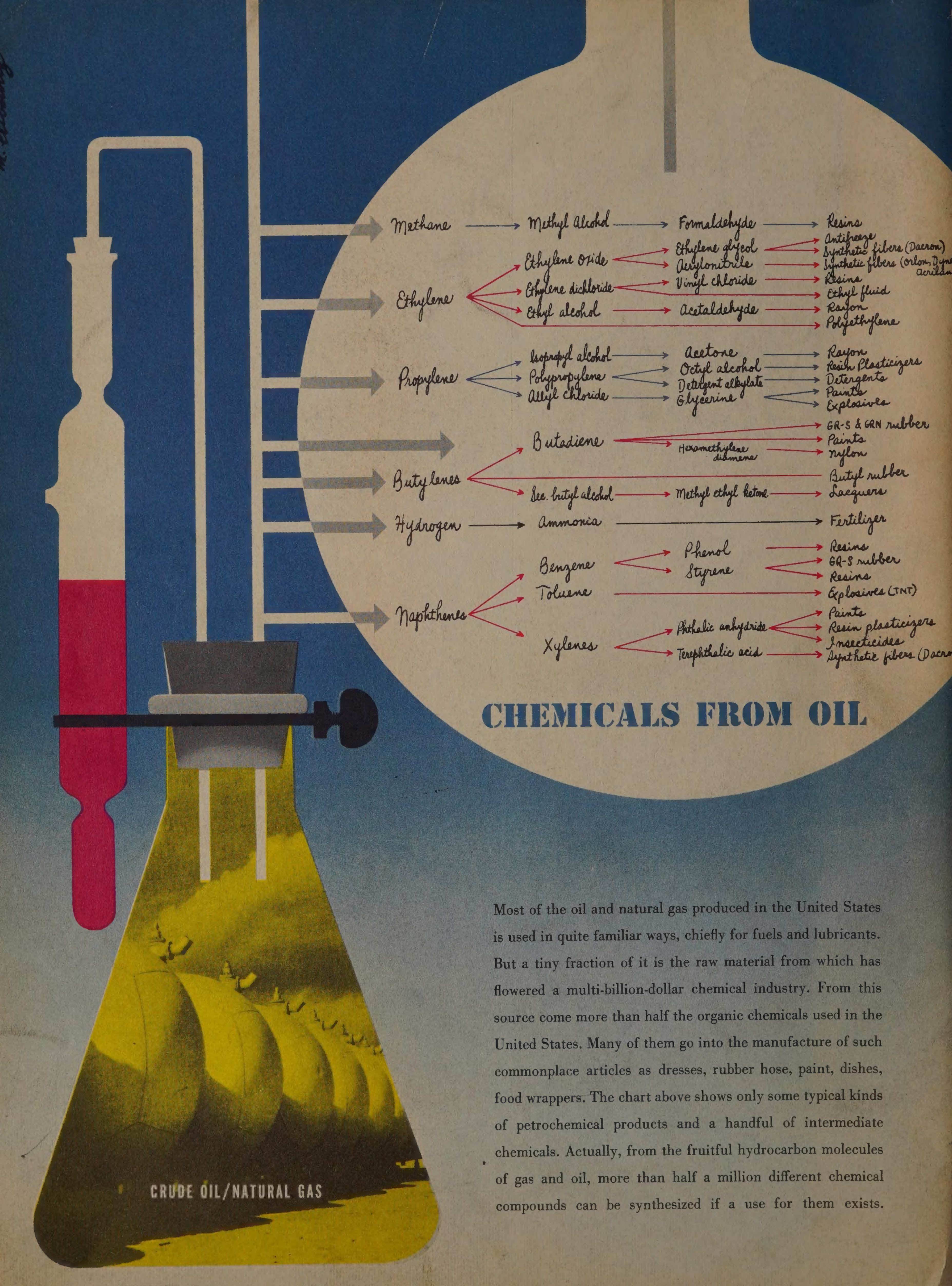


A secretary reads over her notes
as her boss talks on the phone

"You're on the *Queen Mary*." This office
books passage for overseas personnel

The cable office links "30 Rock"
with Jersey affiliates the world over





CHEMICALS FROM OIL

Most of the oil and natural gas produced in the United States is used in quite familiar ways, chiefly for fuels and lubricants. But a tiny fraction of it is the raw material from which has flowered a multi-billion-dollar chemical industry. From this source come more than half the organic chemicals used in the United States. Many of them go into the manufacture of such commonplace articles as dresses, rubber hose, paint, dishes, food wrappers. The chart above shows only some typical kinds of petrochemical products and a handful of intermediate chemicals. Actually, from the fruitful hydrocarbon molecules of gas and oil, more than half a million different chemical compounds can be synthesized if a use for them exists.